

Some Thoughts on Definitions of Innovation
The Editorial Board of The Innovation Journal

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Jack Smith:

I liked reading the responses to the question and I feel this subject deserves more specific discussion amongst those of us directly connected to promoting innovation within and by public sector organizations. My own take on it is something akin to the Ed Roberts perspective - which means that invention must also be exploited before it becomes innovation. Question is what does exploitation mean for Public Sector organizations - for me it means embedding change, (ideally in a codified manner so that the knowledge inherent in the invention can be exploited), in public practice in ways that receive public recognition, adoption, replication or where benefits are demonstrable. The changes can be organizational, managerial, technological or new ways of group/team learning that clearly meet the other criteria I have noted above. I hope this prompts further discussion.

Eleanor Glor:

I and the others involved in writing our book gave a good deal of thought to this question. The issue that we highlighted more than some others is the issue of improvement—we asserted that an innovation is an improvement. And what does that mean?

Here is the definition section:

The academic literature contains a number of definitions of innovation, each revealing important aspects of it. Several authors emphasize newness, including anything perceived to be new by the people doing it (Rogers and Kim, 1985) or innovation as something different for each organization into which it is introduced (Downs and Mohr, 1976), or as the generation, acceptance, and implementation of new ideas, processes, products or services (Thompson, 1965-6) in an applied setting (Mohr, 1969). Some see it as early adoption of a new idea (Rogers and Kim, 1985), others as synonymous with creativity (Jacques and Ryan, 1978), still others as the same thing as improvements (Ellwein, 1985), and a final group as substantive but not revolutionary changes (Merritt, 1985; Deutsch, 1985).

We bring several of these key concepts to our definition of innovation. It includes the notion of creativity: the conception, adoption and implementation of new services or ideas. "New" is something which has never been done before in this way in North America, or something which may have been pilot tested but has not been introduced before as government policy. Our definition includes the concept of "early adopters," i.e. being among the first governments to introduce a new policy, program, or approach. This concept is needed when looking, as we do, at the innovativeness of a whole government, and not just that of a single program.

Innovation as used in this book, then, is the conception, early adoption and implementation of significant new services, ideas or ways of doing things as government policy in order to improve or reform services, ideas and ways of doing things. Minor changes in public administration by themselves are not innovation, but

major changes in public administration, which make a significant difference for the civil service or the public, deserve the descriptor "innovative." The value judgments involved in making a distinction based on the significance of changes make them hard to do by definition, but this book addresses what we consider to have been major innovations. The role of public administration is for the most part a supportive one to innovation. However, good public administration is an essential element in bringing innovation about, as we hope to demonstrate.

"Innovation" is a concept which defines significant change as beneficial, regardless of the ideology motivating it. It attempts to cross over ideologies. Several questions follow from this value judgment: does the concept of innovation successfully cross over ideologies? Is one ideology likely to produce more innovation than another? Is innovation always positive?

In response to the first question, we know that the study of innovation generally occurs outside of examination of the ideologies motivating it. Gow (1991, p.21), however, found that politics as ideology was present in almost all of the cases of (administrative) innovation he studied. It is only realistic to recognize the ideologies motivating innovation.

With regard to the second question, reform or progressive governments are more likely to attempt new approaches. This does not mean, however, that conservative governments are not innovative and in fact experience during the 1980s indicates that conservative governments can introduce many changes.

The answer to the third question is obvious but important: change and innovation are not always beneficial. Innovation is an approach used when a society, organization or individual is under sufficient duress, and perceives the present situation as bad enough, that it is worth risking losing for a (presumably) better solution. Innovation requires risk taking.

While public sector innovativeness is more likely from progressive or reform governments, and ideology is present in innovation, we also argue that progressive governments, like other governments, can be more or less innovative.

Policy Innovation in the Saskatchewan Public Sector, 1971-82. Eleanor D. Glor, ed. Toronto: Captus Press, 1997, pp. 3-4.

Otto Brodtrick:

The attachment contains some of my attempts at defining innovation when I did the Innovation Study for the AG. It goes on over several pages and includes the version that was ultimately published. I normally wouldn't include all the background, but if Dan Crone is really wrestling with it, he might be interested in looking at it.

Thanks for sending all the other definitions. Very interesting. I note that von Hippel is not mentioned. He is the innovation guru at the Sloan School of Management at MIT. I'm sure he has

said something on the topic. And I'm almost sure one of his more prominent students has, too: Stephan Schrader, who now runs the Innovation Unit at the University of Munich.

Another very insightful person on the topic is Prof. Deborah Dougherty, formerly of McGill. She is now at Rutgers University, I believe.

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The following were attempts to reach a working definition of innovation (in a public sector environment) as part of a study done for the Auditor General of Canada. I ended up not "defining" innovation in the final study report, but describing it in terms of five specific features.

The study was published in 1994. The relevant part of the study is reproduced at the end of this note.

Some attempts at defining Innovation

We note that Innovation is not the same as Innovativeness. Innovation is the result of Innovativeness, of being innovative. Innovativeness is a process, Innovation is the result of that process.

An example: The SONY Walkman is an Innovation. It is the result of SONY's Innovativeness.

Another way of saying this is that the Walkman started out being an Invention. Once the invention was implemented, it became an Innovation.

Innovativeness, then, is the application of creative, new ideas, the implementation of inventions.

Creativity, in contrast, is having and articulating new ideas.

An innovation is an applied invention.

Innovativeness is applied creativity.

It follows that you can be inventive, i.e. creative, without being innovative – for instance if you have ideas, are creative, make inventions, but never implement them. By implementing them I mean get them accepted, apply them, put them into use, "exploit" them.

Similarly, you can be innovative without being inventive. If, for example, you apply or implement inventions that were made elsewhere, you are innovative, even though the inventions, the creative ideas, were not your own.

It is widely accepted that the United States is very creative. They have more Nobel Laureates than anyone else. It is also widely accepted that Japan is very innovative. They are more successful than anyone else at implementing, at bringing to market creative ideas.

Blohowiak in his book Mavericks (1992, Business One Irwin) says the following on the subject:

Everyone is fond of innovation, and management's task is to tap the organization's bottomless reservoir of creativity. Managers must also channel those ideas and see to it that they are put to work.

Blohowiak sees innovativeness as the process of

- a) encouraging creativity, and of
- b) putting the resulting new ideas to work, of developing the opportunity.

Blohowiak quotes Paul Cook, Chairman of Raychem Corporation, as saying:

What separates the winners and losers in innovation is who masters the drudgery ... the real work -- reducing the idea to practice.

Wofgang Fürniss, when he was Mayor of a large city in Germany, said:

You can buy almost everything today. You can buy ideas, you can buy knowledge, you can buy materials and resources, you can even buy (the use of) money. The only thing you cannot buy is the courage and the persistence to implement creative ideas.

Implementation, then, is the great challenge that stands between invention and innovation. Innovativeness is the ability, the process, of converting inventions into innovations.

Everett Rogers has this to say on The Innovation (in Diffusion of Innovations, 3rd edition, 1983, The Free Press, page 11):

An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little whether the idea is "objectively" new as measured by the lapse of time since its first use or discovery. The perceived newness of the idea for the individual determines his or her reaction to it. If the idea seems new to the individual, it is an innovation

The "newness" of an innovation may be expressed in terms of knowledge, persuasion, or a decision to adopt.

Rogers uses Dvorak's revised keyboard as an example of how an obviously superior idea was never implemented, hence never became a true innovation (pages 9-10 of his book):

Nondiffusion of the Dvorak Keyboard In Diffusion of Innovations by Everett M. Rogers, The Free Press, New York, 1983 (page 9).

[Further detail on the Dvorak keyboard may be found in Dvorak et al (1936), Parkinson (1972), Typewriting Behavior, New York, American; and Lessley (1980) The Dvorak Keyboard, Salem, Oregon, Dvorak International Federation, Report.]

(NOTE that the Dvorak story was included here, but has been removed for brevity's sake)

The following is from *Managing Innovation*, edited by Jane Henry and David Walker, Sage Publications, 1991, in a contribution by Colin Clipson (page 102):

Invention is the first stage in the process of innovation. There is a qualitative difference between these activities, even though a tidy distinction between them does not exist. They are frequently inextricably linked (but not necessarily [my comment]).

Innovation may occur after a considerable time interval from invention. The term innovation covers all the activities of bringing a new product or process to market, i.e. of converting the invention into an innovation. It tends to be a time-consuming transformation process that is both management and resource intensive, and is more expensive than innovation.

An invention is the solution to a problem. An innovation is the commercially successful use of the solution.

In other words, creativity is having new ideas; innovativeness is the process of implementing and using these new ideas. That is to say, innovativeness is a transformation process: transforming an invention (a new idea) into an innovation (a new way of doing things).

For further reading see Bacon and Butler (1981) *Planned Innovation*. Also Japanese Ministry of International Trade and Industry (Tokyo, 1982) *Economic Analysis of World Enterprise: International Comparison*.

In the same volume by Jane Henry and David Walker, William Davis makes the following distinction (page 142):

A distinction should be made between the terms inventor and innovator. They are widely confused. The inventor produces ideas; the innovator applies these new ideas, he makes new things happen. Many talented people do both. Yet someone who is good at inventing is not necessarily good at turning his concept into a viable commercial application.

The successful innovator is a doer -- someone with imagination who can visualize the possibilities of an idea and who has a strong desire to see it realized in concrete form. He is likely to encounter considerable scepticism and even determined opposition. Yet he presses on despite all the doubts and uncertainties.

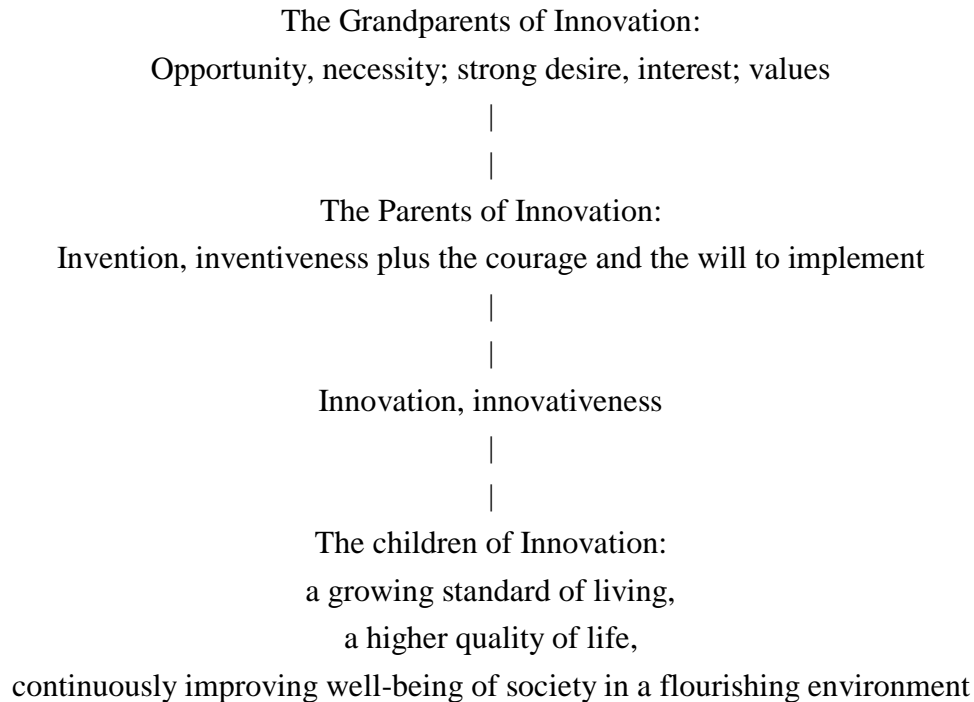
Just as an aside comment: I think we in Canada as a society do not (yet) have the strong desire that is necessary to do the hard work for transforming inventions into innovations. We still have too much inertia; we are unwilling to do the hard work and endure the uncertainties and the long time it takes to be innovators. We have been too well off for too long by simply growing things or digging things out of the ground and selling them.

Genealogy of innovation

Where does innovation come from? How does it originate? We are told in the Bible that the grandmother of death is lust: "Then when lust hath conceived, it bringeth forth sin; and sin, when it is finished, bringeth forth death." (James 1,15)

Can we identify the grandmother of innovation? We said earlier that innovation follows from invention. Hence invention is the mother of innovation. Who is the grandmother? Vox populi created the proverb that "necessity is the mother of invention." If that is so, then necessity is also the grandmother of innovation.

Let's look at this from the other end. How is invention conceived? It seems there may be several fathers: opportunity, interests and values. An opportunity may lead to an invention; the opportunity created by technology lead to Electronic Mail, for example. Interest, greed or strong desire can generate an invention; the strong desire to win a Nobel Prize will compel scientists and others to work very hard at discovering and inventing. Values sometimes beget inventions; parents who value the future of their children highly will be very inventive at finding the means to send them to college. So the family tree of innovation might be drawn like this:



Just as some people remain single and childless, so the potential ancestors of innovation may exist, but not marry. For example, if there is no desire, an invention is unlikely to emerge from an opportunity or even a necessity. Similarly, values may hold in check a strong desire to "invent" something that is questionable.

Similarly at the invention level. Lack of courage, ability, resources or time; adverse circumstances; complacency; inertia; all these may prevent innovation, even though the potential for innovation, i.e. the invention itself, exists. So we conclude that uncoupled, isolated potentials do not necessarily bring forth innovation. It takes a constellation of complementary progenitors to beget innovation.

This constellation we call innovativeness. Hence, when we say that a society is innovative, we mean that it is able to form fertile constellations of progenitors that will bear the fruit of innovation.

Expressed in simpler words, we can say that a society is innovative when it continuously adapts and successfully functions in a rapidly changing environment.

From the Auditor General of Canada:

Excerpt from "An Innovative Society and the Role of Government," Report of the Auditor General of Canada to the House of Commons, 1994 (Chapter 5), page 9:

18. ... societal innovations are a function of the quality and constructiveness of relationships within its communities, based on an overall common vision. In Canada, for instance, the universal health care system was an outcome of such a coherent societal vision. It was a major innovation and is still viewed by many as one of the finest in the world. Innovation is different from creativity

19. Innovation is different from creativity. Innovation is the application of creative new ideas, the implementation of inventions. In contrast, creativity is the generating and articulating of new ideas. It follows that people can be creative without being innovative -- for instance, if they have ideas, make inventions, but never implement them. By implementing them we mean winning acceptance for them, applying them, putting them to use, "exploiting" them, turning them into products and services that other people will pay for and use.

Similarly, people can be innovative without being creative. For example, if they apply or implement inventions that were made elsewhere then they are innovative, even though the inventions, the creative ideas, were not their own. The Sony Walkman, for example, started as an idea, an invention. Once the invention was implemented, it became an innovation.

Five features of innovation

21. Our analysis resulted in a set of five features of innovation. First, innovations and dilemmas do not *occur* by themselves; they are generated and sustained through the efforts of people. Second, during times of rapid change, innovations designed for static situations can turn into absurdities, creating dilemmas, mismatches or clashing values. Third, it takes hard thinking and hard work to generate and foster societal innovations, to disseminate them and to sustain them. Fourth, innovations cannot be generated through edict; they result from the creativity, commitment and persistence of people and communities. Finally, certain behaviors foster innovation; such behaviors can be identified, learned and applied.

22. These features are based on two major premises: that innovation is a crucial survival skill for society, especially during times of rapid change; and that the skill to innovate resides in people. A society and its institutions must therefore do everything they can to develop, attract, support and retain innovative people.

Comments are welcome from readers.

[*An Exchange on Definitions of Innovation, from the Innovative*](#)