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Op-Ed: What has ‘tinkering’ got to do with innovation and economic development?

Differences among the U.S.A., Canada, Russia, and Japan?

Tinkering, consumer-driven materialism, a flexible financial infrastructure, and an open attitude to failure are four important notions contributing to a dynamic, innovative economy.

- **Tinkering** puts ideas into action.
- **Consumer-driven materialism** ensures a ready market for new ideas.
- A **flexible financial infrastructure** facilitates the relatively easy establishment and destruction of enterprises.
- An open attitude to **failure** encourages individuals and corporations to try new ideas, gadgets, and business models.

All four are most prevalent in the United States economy while only one, two or three may be present in other economies.

How many times have you heard the story about one or two guys (most often it is guys but this is now changing dramatically) who started their business in a garage and now have a global business? What were those guys doing in the garage other than tinkering with a purpose. That’s it. A curious mind with an idea working with, in many cases, a not-so-sophisticated set of experiments and retries, and ‘voila’ one has the start of a success story. Many fail, for sure, but the ‘tinkering’ story is probably repeated more in America than any other country. Tinkering is part of American folklore.

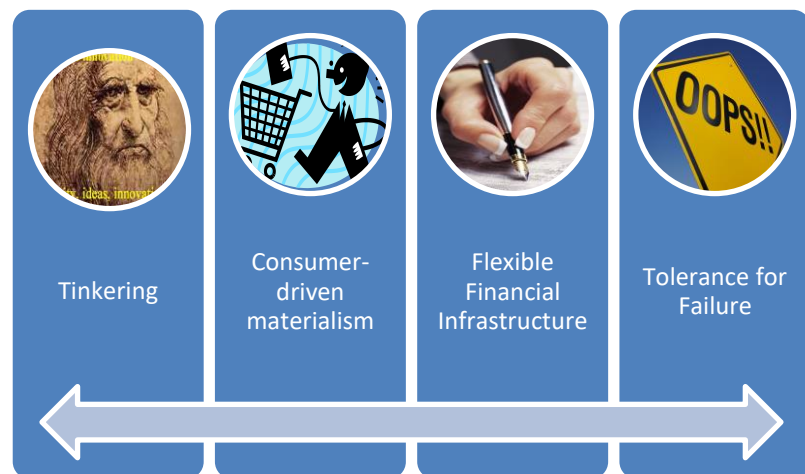
But it takes more than tinkering to create a dynamic economically-successful society. Normally the existence of only one ‘notion’ is insufficient for success. Like most success stories, it takes a congruence of ideas and events to bring about change and while a number of countries have one or more of these four ‘notions’ in play, the U.S. has more of each.

Quick Summary

U.S. innovative economic success is based largely on four notions; ‘tinkering’, materialism, a flexible financial infrastructure and a high tolerance for failure’ at both the corporate and individual level.

The U.S. has all four characteristics in place while the other three countries are missing one or more of these bases for innovation.

Recent analysis of data from our on-line survey suggests that Canadian registrants are more risk adverse than their U.S. counterparts and are less willing to deal with risk in the planning process.



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CIO – Corporate innovation online

Innovation management best practices

Four countries have been selected to illustrate the importance of each notion.

- the U.S., since there is a general consensus that the U.S. is the most innovative country in the world,
- Japan, chosen because of its economic and technological prowess (but lately stagnant economy) and its penchant for high-tech product development and manufacture,
- Canada, being relatively small in economic terms, but leveraged because of its close proximity to the U.S. market and its influences,
- Russia, since this is an example of a country which, while it has vast natural resources and intellectual prowess, is an economic laggard relative to its potential.

Tinkering

Tinkering (one who enjoys experimenting with and repairing machine parts¹) is probably rooted in, but not limited to, an interest in matters scientific. It takes a curious and organized individual to tinker. The requirements are closely correlated to an individual who has an education of some sort and a passion about the subject of his/her tinkering.

Patents applied for might be considered a proxy – perhaps not the best measure - for a nation's tinkering. How does this work out? According to a recent World Economic Forum report² Japan and the U.S. rank 2nd and 3rd respectively, while Canada is 10th and Russia is 44th.

Ranking (out of 144 countries)	Japan	U.S.	Russian Federation	Canada
Capacity for innovation (12.01)	7	2	66	26
Availability of scientists and engineers (12.06).	3	5	70	12
Utility patents. Number of patents for invention – 2008. (Per million pop.)	2 (308.2)	11 (149.8)	41 (7.1)	19 (84.8)

Russia has a large deficit in the availability of scientists and engineers, which might account for part of their poor performance in patents issued.

Consumer-driven materialism

While materialism is more rampant in America than in the other three countries, Japan and Canada are not far behind, whereas in Russia, traditionally only has a small minority of the population which have the where-with-all to be materialistic. This is changing rapidly with the development of a middle class.

¹ Nelson, Canadian Dictionary

² The Global Competitiveness Report 2014--2015

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CIO – Corporate innovation online

Innovation management best practices

The demand for gadgets is a driving force for experimenters. Where else in the world but the U.S.A. could you introduce a new product and have thousands of consumers standing in line to be the first to purchase the newest ‘whatever’. Reference the introductions over the past two decades of tablets and smart phones.

Materialism works in two ways. First, the desire to have the latest gadget creates a ready market for new ideas. Experimenters believe that if they can come up with a new gadget that solves a problem, there will be a market. ‘Find and need and fill it’ is the mantra. Secondly, for tinkerers, the prize is in the pay-off in terms of investment rewards, recognition and the satisfaction of having succeeded. Nowhere in the world are both of these traits exhibited more than in the U.S.

Tolerance for Failure

Many CEOs of highly innovative U.S. companies³ are explicit about their attitude to failure. Their fear is that the large corporation, having grown over years from a much smaller entrepreneurially-oriented group, will become moribund with policies and practices which act to stifle the creation of new ideas. Employees do not take risks where risks should be taken.

Failure is seen as a positive force for change. P&G, while under Lafley, set a quantified objective for failure and Lafley was concerned if the *failure* rate target was not met. By contrast, for Japanese companies, failure is met with abject apologies to all stakeholders. Witness the past apologies from the head of Toyota.

Declaration of bankruptcy at the personal level was once looked upon as unthinkable by most individuals. Now, particularly since the experience of recent economic downturns, the declaration of bankruptcy is becoming more common, and appears more acceptable. The stigma historically associated with failure/bankruptcy is fading.

The U.S. bankruptcy system for corporations, by most accounts, is the most generous in the world⁴. Freedom to fail leads, it can be argued, to higher rates of small business start-ups. ‘If you don’t succeed then try, try again’.

Geert HofstedeTM Cultural Dimensions⁵ puts some measurements on a society’s tolerance to new ideas, thoughts and beliefs. As part of his analytic framework he makes use of the ‘Uncertainty Avoidance Index’; which for the U.S. is 42, Canada’s is 45 and Japan is very high at 89, compared to a world average of 64. A low ranking is indicative of a ‘society that has fewer rules and does not attempt to control all outcomes and results...has a greater level of tolerance for

³ See Profiles of 3M, P&G, John Deere, GE, and Nucor at <http://www.corporateinnovatinonline.com>.

⁴ Time Magazine, March 22, 2010. In Defense of Failure. The 6th of 10 ideas for the next 10 years. Making mistakes is a great American freedom.

⁵ Geert Hofstede’s Value Survey Module is designed for measuring culture-determined differences between matched samples of respondents from different countries and regions. It consists of 20 content questions and 6 demographic questions.

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CIO – Corporate innovation online

Innovation management best practices

ideas, thoughts, and beliefs' and one might add, failure. Russia is not rated. Tolerance, in general, is a characteristic of innovative companies, and by extension, to the businesses of the nation. Tolerance for failure is one important component.

Recent analysis of data from our on-line survey supports the differential between the U.S. and Canadian registrants.

U.S. registrants have a higher tolerance for both failure as well as uncertainty in the planning process when compared to Canadian registrants. Together these characteristics suggest U.S. management's willingness to adopt a higher risk profile as compared to Canadians; a key to understanding why Canada lags in the successful commercialization of ideas.

Further information on this difference can be obtained in a special report available on the web site⁶. As noted in this special report, the difference is supported by considerable anecdotal opinion.

Flexible Financial Infrastructure

Corporations, as we know them today, are structured differently than decades ago. Earlier, corporations had broader responsibilities to stakeholders than is the case today. Corporate law in the mid 1880's⁷ was focused on protection of the public interest and not solely on the interests of corporate shareholders. In America corporate charters were closely regulated by the states. Forming a corporation usually required an act of legislature. Investors generally had to be given an equal say in corporate governance, and corporations were required to comply with the purposes expressed in their charters. In the 19th century, firms avoided the corporate model for these reasons and often took on other business forms such as partnerships.

Permissive corporate laws⁸ were established by states to compete against the liberal practices of the state of Delaware. In the late 19th century, governments were vying with each other to have more liberal legislation in order to attract investment.

By the end of the 19th century the introduction of limited liability, state and national deregulation, and vastly increased access to capital markets had come together to give birth to the corporation in its modern-day form. Corporations have gained rights.

"So important were these changes that the Economist wrote in 1930 that the economic historian of the future . . . may be inclined to assign to the nameless inventor of the principle of limited liability, as applied to trading corporations, a place of honour with

⁶ <http://www.corporateinnovationonline.com/wordpress/wp-content/uploads/2015/11/Canada-verus-U.S.-all-Factors.pdf>

⁷ Wikipedia, Modern Corporations.

⁸ *ibid.*

CIO – Corporate innovation online

Innovation management best practices

Watt and Stephenson, and other pioneers of the Industrial Revolution.", refuting an earlier opinion in 1855 that stated that such moves were overrated.

By most accounts, businesses are easier to establish and ‘demolish’ in the U.S, than in the other three countries selected. New start-ups abound in the U.S. facilitated by relatively easy access to venture capital.

Conclusions

Japan, the U.S. and Canada exhibit a strong consumer-driven materialism. Canada and the U.S. each have a highly flexible financial infrastructure and a tolerance for failure. Tinkering emerges as an important differentiator amongst the four notions set forth and, when coupled with relatively easy access to venture capital, makes a case for recognizing tinkering as part of a winning economic development program and explains part of the U.S. economic success.

	Tinkering; (Examples only⁹)	Consumer-driven materialism	Flexible financial infrastructure	Tolerance for failure
Canada	<ul style="list-style-type: none"> • Bombardier • R.I.M. • Magna 	<ul style="list-style-type: none"> • Just a shade less than the U. S. • Average personal indebtedness is high. 	<ul style="list-style-type: none"> • New company formations are encouraged. • Receivership procedures similar to the U.S. 	<ul style="list-style-type: none"> • Reasonably high
Japan	<ul style="list-style-type: none"> • Sony, • Toyota • Honda, • Etc. 	<ul style="list-style-type: none"> • High demand for name-brand products. • High savings rate. 	<ul style="list-style-type: none"> • New company formations and bankruptcies are less frequent. • Mergers and acquisitions discouraged. 	<ul style="list-style-type: none"> • A major social disgrace. • Resignations, suicides, abject apologies.
United States	<ul style="list-style-type: none"> • Microsoft • HP • Ford • John Deere • 3M • Etc. 	<ul style="list-style-type: none"> • New high-tech products introduced with regularity. • Average level of indebtedness is amongst highest in the world. • Low savings rate. 	<ul style="list-style-type: none"> • High rate of company formations and bankruptcies. • Personal bankruptcies becoming more common. • M&A is highly active. 	<ul style="list-style-type: none"> • Frequent CEO dismissals. • New Board appointments. • Large ‘golden parachutes’.
Russia	<ul style="list-style-type: none"> • Not evident. 	<ul style="list-style-type: none"> • Years of denial has resulted in a brisk demand for goods by those who can afford luxuries; a growing minority. 	<ul style="list-style-type: none"> • Under development. 	<ul style="list-style-type: none"> • Not ranked.

⁹ Examples selected are companies where the founder started with an idea which has led to a global company.

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Russia's potential is significant if it can establish a spirit of entrepreneurship and put in place an effective financial infrastructure to take advantage of its numerous scientific and technology assets. It is interesting to note that shortly after 'perestroika' and 'glasnost', in the early 1990s, private sector companies and research institutions in the Western world made an aggressive effort to licence Russian-developed science and technology; military, industrial and commercial. Latent talent and intellect still persist.

Tinkerers' success is facilitated by government support. The creation (and monitoring) of financial institutions, the provision of; patent and copyright protection, incubation facilities for entrepreneurs, and support for research institutions, are all examples of cooperation between government and the private sector. Some might view these comments as 'the private sector working within government'. or, where' government works within the private sector'. Neither of these extremes is appropriate. In the end success is dependent upon both the public and private sectors working together.

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