

FROM INVENTOR TO ENTREPRENEUR: OPTIMISIM VERSUS REALITY

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To many people, the definition of an entrepreneur is inventor who goes from the workbench to the marketplace to a major stock exchange. However the rag to riches scenario is an exception to the rule. A recent study by a Canadian economist puts reality into measured perspective.

No Surprise: The Odds Are Stacked Against You

In 1998, Thomas Åstebro conducted follow-up telephone interviews with 1,091 Canadian inventors who had their invention assessed by The Canadian Innovation Centre (CIC)¹ in Waterloo, Ontario between 1976 and 1993. The CIC serves independent inventors in Canada and includes an Inventor's Assistance Program (IAP) that evaluates a specific idea or invention before it reaches the marketplace in return for a small fee. Mr. Åstebro used the IAP database to track down and contact over 1,000 inventors to assess the commercial success of their invention in order to determining the pre-tax internal rate of return (IRR) generated by the inventions. Here are some of the things he found, as reported in his 2003 paper in *The Economic Journal*²:

- _ 93% of the polled inventions never reached the market, representing odds of 1 in 14.
- _ Of those that did reach the market, only 40% actually produced positive returns, representing 2.8% of the original total or odds of 1 in 36. In other words, 60% of those that actually made it to market lost money.
- _ The average return of all the inventions that made it to market was 11.4% pre-tax, which was lower than the average return on a long-run portfolio of high risk investments (18% to 23%) or early stage venture capital funds (22%).
- _ However, even this 11.4% IRR was skewed by a few very successful inventions. Six inventions (0.55% of the sample, or 1 out of 181) realized 1400% returns, and one invention (0.09% of the sample, or 1 in a 1,091) realized returns of 2960%.
- _ The median return on those inventions which actually made it to market was in fact -7%, which means that more than half of those few ideas which seemed to have enough merit to attract capital to take to market still ended up losing money.

¹ <http://www.innovationcentre.ca>

² Åstebro, Thomas, *The Return to Independent Invention: Evidence of Unrealistic Optimism, Risk Seeking or Skewness Loving?* . . . The Economic Journal 113 (484), 226-239 (January, 2003).

So the odds are stacked against you if you are an independent inventor looking to hit a home run with your new invention or idea.

Improve Your Odds, Or Avoid The Heartache: Deepen Your Research and Consult The Experts

Thoma Åstebro's research was based on inventors who actually took the time and spent the money to get an expert assessment of their invention or idea.³ We can assume the odds of success get a lot worse if we were to take into account the thousands of inventors who attempt to commercialize their invention without consulting a panel of experts.

Even getting expert approval for your idea is no guarantee of success. Of the twenty-four inventions that received an A rating from IAP, only 50% were eventually commercialized even though 91% of the inventors pursued their projects. However, negative feedback from a variety of experts can be valuable.

Get your idea assessed by an industry expert. The IAP only charged about C\$262.00 and gave some remarkably useful advice. 75% of all the submissions received a D or E rating and the inventor was advised to terminate their project. 23% received a C or B rating (a modest or promising chance of success) while only 2% received an A rating (they merited a serious effort to commercialize by a full-time entrepreneur). None of the projects rated E reached the market. 4-7% of those rated D made it to market, but only 23% of those made money, and the average IRR of the D ranked group that made it to market was -28.5%. On the other hand, 27.5% of the combined A and B ranked projects got to market, and 65% of those made money with an average IRR of 37.2%. Industry experts can be very a valuable source of information on the likelihood of your invention's success.

There are a number of for-profit, not-for-profit, private sector and government based research centres. A catalogue of research centres can be found on the Canada-Ontario Business Service Centre website.⁴ An Internet search based on your industry, product and geography should lead to several possible options.

Research and use government resources that support inventors.

Even if you already have validation from an industry expert, there are a lot of excellent government services to support innovation and inventors in Canada and Ontario. They're an excellent resource for assessing the viability of your project, sourcing potential partners and arranging financing. An Internet search should produce some good results, including the Canada-Ontario Business Service Centre (a joint project of the federal and Ontario governments)⁵, Innovation in Canada (a federal government initiative)⁶, the National Research

³ For example, the IAP only gets 1 submitted questionnaire back for every 10 requested forms it sends out (Åstebro, footnote 1).

⁴ <http://www.cbosc.org>

⁵ <http://www.cbosc.org>

⁶ <http://innovation.gc.ca>

Council's Industrial Research Assistance Program, and the federal government Innovation Financing Solution.

Network with other inventors. There are a number of non-profit inventor-based organizations in Canada, including The Canadian Innovation Centre⁷, Inventors' Alliance Canada⁸ and Inventing In Canada.⁹ These organizations will help you assess and commercialize your invention, and can also introduce you to other inventors who can share their real life experiences.

Research patents. You should research potential competing patents. The availability of patent protection may be crucial in securing financial support for your project. Both the Canadian¹⁰ and US¹¹ governments maintain an Internet-searchable patent database, and Inventing in Canada contains a page with useful links to patent databases around the world.¹²

Get your idea assessed by a patent lawyer with expertise in your area. A patent lawyer can search for competing patents or similar inventions. This can give you a sense of what your chances are. In addition, patent lawyers deal with inventors and inventions on a full-time basis. They can advise you on the originality of your idea, and the extent it is defensible by patent. This is not only a solid reality check, it is an essential answer to the first question you are likely to get from any investor or entrepreneur: "*Is this patentable?*"

Team up with an experienced, industry savvy entrepreneur. Economists acknowledge that entrepreneurial ability is as important as research in terms of economic development.¹³ This is also true for the commercialization of a specific invention or idea. Inventor-entrepreneurs are very rare, and you may not be one. Seek out an entrepreneurial partner to help you commercialize your invention. Try to find someone with proven experience in your technology or marketplace. You may be tempted to partner with people who have generic entrepreneurial skills, but they are not likely to be as effective as a person with proven, market-specific entrepreneurial skills. This is also a good test of your invention or idea. If proven entrepreneurs who know the market and appreciate your invention consistently refuse to take on your project, then you need to carefully consider whether your invention or idea is as promising as you think it is.

Seek knowledgeable investment capital. Seek investment capital from financiers with similarly specialized knowledge. Family, friends and your own money are a good source of capital for developing your idea and getting your initial research started. However, seeking out investors or financiers who understand the project can make a big difference to the success of your project. They will be able to help you assess whether your project can be commercialized and they will have good ideas on how to go about it. Look for investors who have demonstrated an ability to commercialize inventions in the same industry or market that you are targeting. Once again, if

⁷ <http://www.innovationcentre.ca>

⁸ <http://www.inventorsalliance.com>

⁹ <http://inventors.ca>

¹⁰ <http://patents1.ic.gc.ca/intro-e.html>

¹¹ <http://www.uspto.gov/patft/>

¹² <http://inventors.ca/ipsearch.htm>

¹³ Michelacci, Claudio, *Low Returns in R&D Due to the Lack of Entrepreneurial Skills* . The Economic Journal 113 (484), 207-225 (January, 2003).

those kinds of financiers regularly reject your project as not being viable, you should take a sober second look at what you have developed.

Team up with a major corporation. Consider teaming up with a major corporation in the market you wish to enter. The Åstebro article and other research confirm that inventions adopted by an existing corporation in the marketplace have four times the chance of being commercialized as inventions pursued by an independent inventor.¹⁴ This is especially true of modest improvements to an existing product, versus industry- or society-shifting inventions. An independent inventor may have a better chance of attracting capital and distribution to a big idea than a modest one. Both ideas may involve a significant uncertainty of success, and may even involve significantly large outlays of capital, but the big idea usually offers the potential for an outstanding return on investment that justifies a big risk. A major corporation already in the business, however, is more likely to be attracted by incremental returns, especially if it is in an industry where innovation and product improvement are as important as price reduction and cost management. There are risks in approaching a major corporation with a new invention or idea, but your lawyers can help you manage that risk. And once again, if no major corporation already in the market cares much for your project, then you must reconsider whether your project is really viable at all.

A Closing Thought

About 50% of the inventors who were told by the IAP that they had no or very little chance of succeeding proceeded with their projects anyway. Having paid for expert advice, they did not follow it. The advice turned out to be pretty sound.

None of the E ranked projects was commercialized.

Only 3.6% of the D ranked projects made it to market, and they collectively produced a 3.6% average IRR. However, the IRR was skewed by a few D products. The median rate of return of the D ranked projects that made it to market was -28.5%. Only 6 of the D ranked projects that made it to market actually produced a positive return, or roughly 1 in 110.

The B and C ranked projects didn't do much better. Although over 80% of those inventors proceeded with their projects, only 15.7% made it to market, or just over 1 in 6. The C inventions that went to market produced a collective IRR of 4.8%, or roughly what no-risk government bonds were doing at the same time. The majority of them lost money, as only 38% of the C ranked projects that went to market had a positive return.

Why do inventors behave this way? They are either stubborn, overly optimistic, attracted to lottery-style risk, more interested in being proven right than to making money, or some combination of all these qualities. But it certainly tells us that there is a world of difference between being an independent inventor and a successful entrepreneur.

¹⁴ Åstebro.