

Review on Gustavo Manso's paper: Creating incentives for innovation published in 2017

This paper focuses on how to create incentive within businesses to encourage themselves to take up new innovation, given conflicts between principals - agents, trade-offs between exploitation - exploration and long-term vs short-term goals. The author argues that early failure in adopting untested technology should be tolerated while long-term performance should be considered when calculating rewards. Although adopting untested technology is one of the most concerned areas acknowledged across the business world, the author points out that embracing new technology and innovation is not easily integrated into corporates' practices. Several areas, both implicit and explicit to enterprises, such as contracts, corporate culture, feedback, bankruptcy law, independent boards and shareholder litigation, have been touched on to understand the impacts of those factors on the willingness to adopt untested innovation.

This article is a quantitative research paper. The author develops his research based on the "decision-modelling method taken from probability theory". Primary data is used for the business strategy experiment while secondary data is used in case of scientific research comparisons. The model contains two periods with two possible outcomes: failure or success, in each period. The results from both experiments are in line with what the author predicted. The article in general is very informative but there remain some limitations with the use of the model as well as of data and information. Also, suggestion for tolerating early failure has also been researched before.

Firstly, although it seems that the author wants to focus on both small and large businesses at the beginning, most of the information used is about big corporations. For example, the author used the KPMG's 2016 survey of 400 U.S. chief executives in which 22.5% of the companies surveyed have revenue from US\$500 million to US\$999 million, 45.5% from US\$1 billion to US\$9.9 billion and 32% earn a minimum of US\$10 billion annually. In the PwC's 2017 poll of 1379 CEOs in 79 countries, 74% of the companies surveyed earn a minimum of US\$100 millions per year (36% earn at least US\$1 billion). In page 19, 3M and IBM are used as examples, while Enron and Worldcom Communications are employed in page 30. These companies are (were) in fact large and established, not really small ones and they are all American firms. It can be, however, justified for as the article was published in an American journal "California Management Review" and the author himself is also an American professor. However, as the majority of the American economy is made up by small and mid-sized firms, not large enterprises, the extensive use of large corporations as examples does not really make the paper representative enough of the actual situation of the US economy. In addition, large (US) enterprises with complex business models tend to have many different departments, including research departments and they might be able to spend more money on exploring new technology than small and medium (US) firms. The way the article focusing on mostly large (US) enterprises rises questions of whether small and medium firms should also have their own research department, and should they spend more capital on exploration instead of exploiting existing and successful technology? As the article focuses mostly on US businesses, to generalise the findings to other countries should be taken with cautious since US business culture tends to focus more on short-term goals instead of long-term ones. The findings and suggestions, therefore, are more relevant to firms which currently prioritise more on short-term goals.

There are also some ambiguities regarding the use of the two-period model. The author did not clearly define what he meant by success and failure and which yardsticks are used to measure such outcomes. Defining the two outcomes is important because if in case of a business being successful in trying an untested method but the pay-off is the same as if a conventional method were to be tried. In this scenario, the final result may be inconclusive and therefore, another outcome should be added into the model. It is clear from the article that the author did not claim that the pay-off of the new method if successfully implemented is "always" higher than that of tried method but he wrote that: "Thus, if the agent discovers a successful new method the total payoff from exploration may be higher than the payoff

from exploitation”. In addition, in the bandit-problem, one gambler needs to try several machines to find the highest payoffs. Therefore, if the author wants to use the model to examine the principle-agent business problem, with three “machines”: fixed wage, standard pay-for-performance contract and contracts designed to motivate exploration, he needs to allow each participant to take part in all scenarios. However, what was done is that 379 participants were divided into three groups with different compensation schemes. The results of each group are then used for comparison. The problem of dividing all participants into three different groups is that how the author could ensure that three groups have the same characteristics as if only one person were to try all compensation schemes. The author did not really address in the article how the participants were selected and then divided into each group and how the problems regarding the differences in characteristics of all groups were minimised.

Another limitation is in the feedback section. In this model, avoiding feedback on improving performance is optimal if exploitation is desired while providing feedback on improving performance is optimal if exploration is desired. One assumption is made here by the author is that **no adjustments** need to be made when embracing exploitation as agent just simply replicates what has been done successfully in the past. However, if company B wants to exploit the technology that company A used successfully without any modification, I think that a few more assumptions need to be added here. Firstly, the business structure and operations (and other factors) between the two companies must be exactly the same so that a tested technology can be used in both two companies without any adjustment. Secondly, people who possess the knowledge of that technology should be able to move freely between two (even competing) companies so that they can replicate exactly what they had done successfully in the past. The two assumptions I just mentioned above are not always realistic in the real business world as it might be hard to find two or even more companies with exactly the same in any aspects of their business models and secondly, staff members who possess strategic knowledge of the successfully tested technology might find some barriers in working for other companies.