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Editorial, *Applied Marketing Analytics*, 6(1), 2020

Marketing science and epidemiology

Over 50 years ago, Professor Frank Bass of Purdue University wrote an article for *Management Science* entitled 'A new product growth model for consumer durables'.[1] He postulated a relatively simple mathematical model that predicts consumer adoption rates of new durable products. The 'Bass model' as it is often called, now ranks among the most cited management science models in history and has been extended and adapted numerous times. Interestingly, the inspiration for the model came from epidemiology, and the author deserves much credit for understanding that infectious diseases and successful new products evolve using similar principles. In Bass model terms, the process is driven by just three parameters: the size of the market (m), the strength of innovation (p) and the strength of imitation (q). In order for diffusion to happen, q must be greater than p.

The managerial importance of understanding diffusion (and evolution in general) has become painfully apparent in the current pandemic crisis. In particular, cities or countries that have acted fast in curbing transmission (which is a form of 'demarketing') enjoy much lower infection rates than others. The marketing equivalent of this observation is as follows: in an evolving market, marketing can have long-lasting, even permanent effects on business performance. This is not true for stationary markets (a variable is stationary if its mean and variance are stable over time), where even effective marketing efforts enjoy short-term impact, followed by a 'return to the mean'. A textbook example is the impact of price promotions in mature markets.[2] Are they generally effective in lifting sales for the promoted brand ? In the short run, absolutely. Do they have long-run impact ? Generally not.

When it comes to tracking diffusion, the digital age offers numerous new opportunities. Google queries, Facebook likes and a host of other internet-derived metrics can be used to gauge consumer interest in marketing activities and, as such, can act as leading indicators of whether or not the marketing action will have a long-run impact. For example, the level of pre-launch social media buzz around a new motion picture has been shown to be valuable in predicting the movie's post-launch viewership (opening-week box office).[3]

To be meaningful, however, these 'digital leading indicators' need to be thoroughly tested for sales impact. Just because a certain marketing message has gone viral in the digital space, does not necessarily imply that it drives all-important economic metrics such as sales or market share. In fact, if the viral campaign occurs in an otherwise stationary market for the product, it is highly unlikely that sales will respond in a viral fashion. In Bass model terms, it is quite possible to have q > p in messaging space, but q < p in transactions space.

The takeaways from these observations are as follows. From a marketing strategic perspective, evolving markets are much more attractive than stationary markets. Interestingly, even in mature markets, there can be *temporary* windows of evolution, and therefore opportunity for brands to create long-term marketing impact.[4] From a marketing analytics perspective, inspect the data on performance metrics over time. Are they stationary or are they evolving? Only in the latter case can one expect to enjoy long-lasting impact of marketing actions, similar to the long-lasting effects of curbing the spread of an infectious virus.

The field of epidemiology has provided important inspiration to marketing science. Now, however, marketing is returning the favour. For example, official healthcare agencies in various countries struggle to provide accurate counts and predictions of daily COVID-19 infections. A team of marketing scientists and computer scientists has demonstrated that these predictions can be significantly improved upon by monitoring Google searches and Twitter messages that include the term 'corona' and including these metrics in a model.[5]

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References

(1)   Bass, F. M. (1969) 'A new product growth model for consumer durables', *Management Science*, Vol. 15, No. 5, pp 215-227.
(2)   Nijs, V., Dekimpe, M., Steenkamp, J.-B. and Hanssens, D.M. (2001) 'The category effects of price promotions, *Marketing Science*, Vol. 20, No. 1, pp 1-22
(3)   Kim, H. and Hanssens, D.M. (2017) 'Advertising and word-of-mouth effects on pre-launch consumer interest and initial sales of experience products', *Journal of Interactive Marketing*, Vol. 37, February, pp 57-74..
(4)   Hanssens, D.M., Wang, F. and Zhang, X.-P. (2017) 'Vigilant marketing: catching fleeting opportunities for growth spurts', *Applied Marketing Analytics*, Vol. 3, No. 2, pp 130-138.
(5)   Skiera, B., Jürgensmeier, L., Stowe, K. and Gurevych, I. (2020) 'How to best predict the daily number of new infections of COVID-19', available at: https://dx.doi.org/10.2139/ssrn.3571252. Accessed on April 22, 2020.