

BOOK REVIEWS



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The Rules of Contagion Why Things Spread – and Why They Stop

Dr Tony Curtis

I think this book ‘accidentally’ expresses the zeitgeist of 2020 as it was written before COVID-19 exploded. My experience of 2020 is continually muttering under my breath ‘*A little knowledge is dangerous.*’

In the late summer, Plymouth is the home of the UK Firework Championship. Plymouth Hoe provides the ideal grandstand for some 100,000 people watching the spectacle sited on the breakwater. Without fail you will always be within ear shot of an ‘expert’: what they don’t know about fireworks has never been discovered! In the UK, descriptions like ‘bar room pundits’ or ‘armchair experts’ are used for people who do not let their lack of knowledge or understanding prevent them from providing [usually loudly] definitive critical assessments.

Regrettably even textbooks are not immune to this type of problem. Take the example of The Boston Matrix, a common model given in many Marketing textbooks. Sadly, I know of no such textbook (except my own!)

that has a correct representation of the model. Teachers who have never applied the model in real life will expertly say that products called ‘dogs’ are in the decline phase. However, they unfailingly have the dog represented in a quadrant above the zero-market growth line. Apparently, they are blissfully unaware of the contradiction or have a total lack of knowledge of even the most basic mathematics. In innumerable exam papers I have marked, students have blissfully commented that this is the model of choice as it is ‘simple’. Well yes, most often it is simply wrong and inappropriate. In one Marketing exam, the instruction for candidates was to draft a Boston Matrix from ‘real’ market data. A number of formal student complaints were received that the question was impossible as negative market growth did not fit into the [text book representation] of the model.

It was a chastising experience that I too had fallen into the trap of familiarity. Marketing textbooks are

replete with discussion of the ‘Diffusion of Innovation’ and its representation in the familiar innovators, early adopters, majority and laggards’ labels for buyers. This translates into the equally familiar ‘S’ shaped curve. An immense strength of this book is the meticulous referencing and use of original source material. The birth of this model is lost, for many like myself, in the mists of time. The model was apparently first developed in 1962 by Everett Rogers in his book ‘Diffusion of Innovations’. This model, as are all models, based on assumptions; in this case just how uptake is passed from one individual to another. I too had become a ‘armchair expert’, using a model without understanding the underlying theory. We need books like Kucharski’s to get us back to grounding that models use data and assumptions since in real life, there can be problems with both!

Back to our ‘armchair’ experts. Everybody appears to have an expert opinion on the value (or lack of it) of wearing a mask and with great

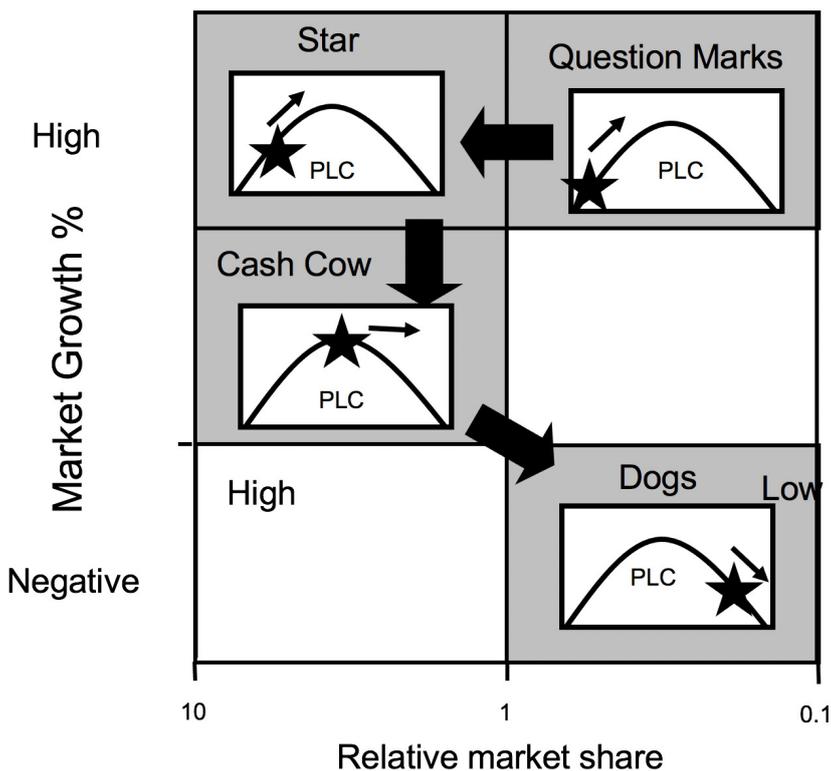
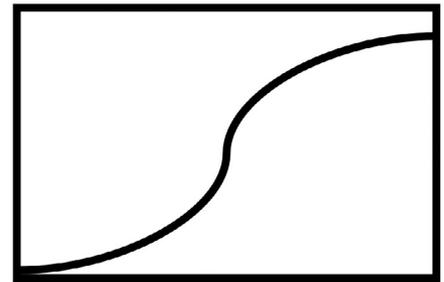
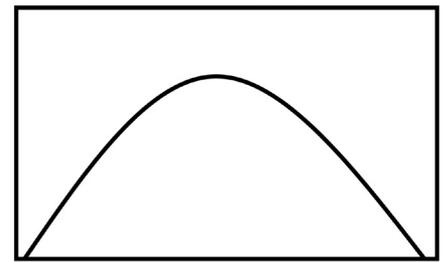


Figure 16.5 - Adapted Boston (BCG) matrix



Top: The curve of sales over time as innovations are adopted by customers

Above: The S-shaped curve

confidence discuss the 'R' number to prove their assertions. This book is the first good discussion I have read about the DOTS model:

$$R = \text{Duration} \times \text{Opportunity} \times \text{Transmission probability} \times \text{Susceptibility}$$

Use of the 'R' number without understanding the underlying components of which it is comprised is futile. It never stops the tabloid press with its unflinching drive to keep complex problems simple!

In a few pages of enthralling reading Adam takes us from the South Sea Bubble, to the 2008 financial crash and onto the Ronald Ross's mosquito model of malaria transmission. The structure of the 'R' model gave insight into how to better devise malaria transmission control programmes. Better knowledge and understanding can help us make improved decisions.

In chapter 4 'Something in the Air', Adam takes us on another magical

pathway from the 19th century 'miasma theory' group think to the classical exposition of Snow's brilliant detective identification of the cause of the 1854 Soho cholera outbreak (not miasma). What I find truly remarkable as a Chemist, was that the cause 'bad water' was identified, but there was no germ theory at the time. For a Chemist, this is reminiscent (after the 200th anniversary of the Periodic Table) that Mendeleev had no atomic theory to anchor his inspirational ordering of the elements. They both followed the data. The fundamental understanding of the theoretical causes came later. What is truly remarkable is how, with judicious insight, models can be moved from one area of application to another. The mathematics and modelling in this book take us onto public health inspired insights into the issue of domestic violence.

I have to confess I am on a mission to impress on our ICATS students and all our readers: it is imperative to read and discuss things widely,

since concepts and ideas developed in apparently unconnected areas can yield invaluable insights. Human behaviour and motivation are core factors in numerous areas. In the 1854 Soho cholera outbreak, the beer drinking brewers did not get infected. Fake news is not just irritating when it affects individual behaviour (and hence the 'R' number) the effects can be fatal for many people. One of the weekly magazines I read has a column entitled 'Boring but important'. This book is not just good, it is exemplary! There are 51 pages of meticulous notes and references and 5 pages of recommended further reading. These references and further reading take you to the frontiers used by Adam in providing us with this invaluable insight into a diverse set of important issues all linked by one concept: contagion.