

## **Factoring for technological inertia**

By Bruce McCabe

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**Inertia** *n.* resistance or disinclination to motion, action or change. (Dictionary.com)

Managers are often faced with the need to predict the adoption of technologies. One week it could be predicting when customers will move to next-generation telephone handsets so the business can introduce new services. Another week it might be Linux adoption or how quickly small businesses are upgrading to new accounting software. On other occasions it could be predicting how soon trading partners will transition to e-commerce.

These questions are an ever present and vital part of business decisions. They matter. They also happen to be very difficult to answer.

Countless scholars, from computer scientists and economists to social scientists and psychologists, have spent time building up theories to help understand how people and organisations adopt new innovations and technologies. Hundreds of books and academic journal articles have been published, and a lot of this work has found its way into models that can be applied by managers.

Most managers will use simple economic models when predicting technology adoption. At the very least they will think about costs and benefits and whether these produce a decent ROI for the technology. Generally there is a fair bit of focus on the characteristics of the technology itself. Is that processor a lot faster? Will the new features in that application appeal to buyers? Is that operating system more stable? Will people buy Tablet PCs because the interface is easier to use?

Social, political and behavioural factors are also vital, but are much more difficult to assess. Will businesses delay an ERP upgrade because they distrust the vendor that acquired it? What will happen when early adopters talk to their peers about bad experiences with Version 1.0 of a new software package? Will executives queue up for a new PDA because it looks cool?

One factor mostly ignored by managers, and often missed by academics, is something I call technological inertia. By this I mean all those things that make it harder to throw away the technology in place when something new comes along.

Factoring for technological inertia is becoming more important with time: the more installed technology there is, the more it has a bearing on the next transition.

At its most basic, buyers can be unwilling to replace a technology until they put more mileage on it, given the time and trouble it took to install last time around. But this is only part of the picture. The organisational and emotional investments built up around the technology—in the form of dependent business processes, user training, technical skills and support relationships—are often bigger than the technology itself.

Inertia, for example, is a key factor shaping the population of mobile telephone handsets. New purchases are not just propelled by the arrival of cheaper, better handsets. They are slowed by people being comfortable and familiar with what they have, not wanting too much change and not wanting to throw away what they spent so much time choosing only a short time ago. Such considerations could safely be ignored when mobile phones were a new phenomenon, but not now. Organisations may put off the transition to new accounting software, even though it is vastly richer, because they don't want to have to alter the purchasing, billing, taxation and reporting procedures they have built up around the old version. Fifteen years ago transitions between word processing applications used to be quite common, but large organisations won't move to any new office productivity suite quickly today, even one offering the same features at a tenth of the price, in part because substantial inertia has built up around every employee being familiar and comfortable with Microsoft Office.

A particularly important example is found in the many Australian corporations running mission-critical business applications on old (many observers would say archaic) mainframe platforms. They do so, even when more efficient alternatives have been available for years, because the old platform is still doing at least an adequate job and they have built up considerable investments around it. This inertia can mean trouble when both skills and vendors supporting the legacy system dry up: there are plenty of examples of managers pulling their hair out because the cost of maintenance has become exorbitant but making the transition will be a nightmare.

Rising technological inertia has produced fundamental changes to both businesses and the IT industry over the eleven years that I have been researching technology trends. Managers will definitely benefit from considering it more often in their planning.