Chapter 4

Innovation Translation, Innovation Diffusion and the Technology Acceptance Model: Comparing Three Different Approaches to Theorising Technological Innovation

Arthur Tatnall
Victoria University, Australia

ABSTRACT

The process of innovation involves getting new ideas accepted and new technologies adopted and used. There are a number of different approaches to theorising technological innovation and this chapter will compare and contrast what I suggest are the most important three: Innovation Diffusion, the Technology Acceptance Model (TAM) and Innovation Translation, giving examples of how each of these approaches is used in different situations. While there are many advantages to the use of an Innovation Translation approach, it should not be said that Translation offers a better approach than the others in all circumstances and that the others have nothing at all to offer; that would be rather too simplistic a view given the widespread use of Innovation Diffusion and TAM. This chapter proposes that perhaps it should not be a case of always using either one approach or the other but rather the use of whichever is most appropriate to a particular investigation.

TECHNOLOGICAL INNOVATION

The process of innovation involves getting new ideas accepted or new technologies adopted and used (Tatnall, 2005). After the discovery of a new idea, or the invention and development of a new technology it does not automatically follow that this will be adopted by its potential users. (The investigation of innovation processes discussed here is based on the assumption that the potential adopters have some choice in the adoption and I will restrict my discussion to adoptions of this type.)

It is important now to distinguish between invention and innovation. While invention involves the discovery or creation of new ideas or
technologies, innovation is the process of putting these ideas or technologies into commercial or organisational practice (Maguire, Kazlauskas, & Weir, 1994; Tatnall, 2007b). The Oxford dictionary defines innovation as “the alteration of what is established; something newly introduced” (Oxford, 1973) and is concerned with individual and business decisions to adopt new inventions (Tatnall, 2007a). The study of innovation does not concern itself with inventors and the details of their inventions, but about individual and organisational decisions to adopt these new inventions. Invention does not necessarily invoke innovation, nor is invention necessary or sufficient for innovation to occur (Tatnall, 2005).

Making any change to the way things are done is a complex undertaking and difficult to achieve successfully. The success of any innovation is always in doubt because people who are prepared to support the innovator can be difficult to find and to convince. Although writing of political change almost five hundred years ago Niccolò Machiavelli summed this up as follows:

“There is nothing more difficult to handle, more doubtful of success and more dangerous to carry through than initiating changes ... The innovator makes enemies of all those who prospered under the old order, and only lukewarm support is forthcoming from those who would prosper under the new. Their support is lukewarm partly from fear of their adversaries, who have the existing laws on their side, and partly because men are generally incredulous, never really trusting new things unless they have tested them by experience.” (Machiavelli, 1515:19)

One of the difficulties faced in investigating the adoption of technological innovations is that not all of these innovations are adopted in the form in which they were proposed – not all are adopted without change. This raises the question of just what was adopted in each case if it was in some way different from what was proposed by its instigator. This chapter will examine, with examples, the issue of how technological innovations are adopted or rejected, and how they might sometimes be changed during the process of adoption.

MODELS OF TECHNOLOGICAL INNOVATION

To investigate the adoption of new ideas or technologies and how innovation takes place, it is useful to follow one of the major theories of technological innovation (Al-Hajri & Tatnall, 2007; Tatnall & Dai, 2007). One important difference between some of these theories is the degree to which the adoption decision is seen as completely rational, and whether provision is made for partial adoption. A brief discussion of the main approaches to theorising innovation follows.

A number of approaches to theorising technological innovation exist, but this chapter will concentrate on just the main three: Innovation Diffusion (Rogers, 1995, 2003), the Technology Acceptance Model (TAM) (F. D. Davis, 1986, 1989; Fred D. Davis, Bagozzi, & Warshaw, 1989) and Innovation Translation (Callon, 1986; Latour, 1996), giving brief mention to the Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the Theory of Planned Behaviour (Ajzen, 1991). Other approaches to theorising innovation including: Social Cognitive Theory (Bandura, 1986), the Decomposed Theory of Planned Behaviour (Taylor & Todd, 1995), the Technology Acceptance Model 2 (Venkatesh & Davis, 2000), Augmented TAM or Combined TAM and TPB (Taylor & Todd, 1995) and the Unified Theory of Acceptance and Use of Technology (Venkatesh, Morris, Davis, & Davis, 2003). These approaches are, however, not fundamentally different to Innovation Diffusion and TAM, but rather variants on these.
Related Content

Institutionalisation of the Enterprise Architecture: The Actor-Network Perspective
www.igi-global.com/chapter/institutionalisation-enterprise-architecture/70836?camid=4v1a

Desituating Context in Ubiquitous Computing: Exploring Strategies for the Use of Remote Diagnostic Systems for Maintenance Work
www.igi-global.com/chapter/desituating-context-ubiquitous-computing/65892?camid=4v1a

Understanding the Implementation of IT Governance Arrangements and IT Infrastructure Using Actor Network Theory
www.igi-global.com/article/understanding-the-implementation-of-it-governance-arrangements-and-it-infrastructure-using-actor-network-theory/166599?camid=4v1a

Enhancing Understanding of Cross-Cultural ERP Implementation Impact with a FVM Perspective Enriched by ANT
www.igi-global.com/article/enhancing-understanding-of-cross-cultural-erp-implementation-impact-with-a-fvm-perspective-enriched-by-ant/105146?camid=4v1a