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# Factors Affecting the Adoption of ICT Curriculum Innovations and Educational Technology

**Arthur Tatnall**

**Centre for International Corporate Governance Research  
Graduate School of Business  
Victoria University  
Melbourne, Australia**



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SCHOOL OF  
THOUGHT**

# Change as a Complex Activity

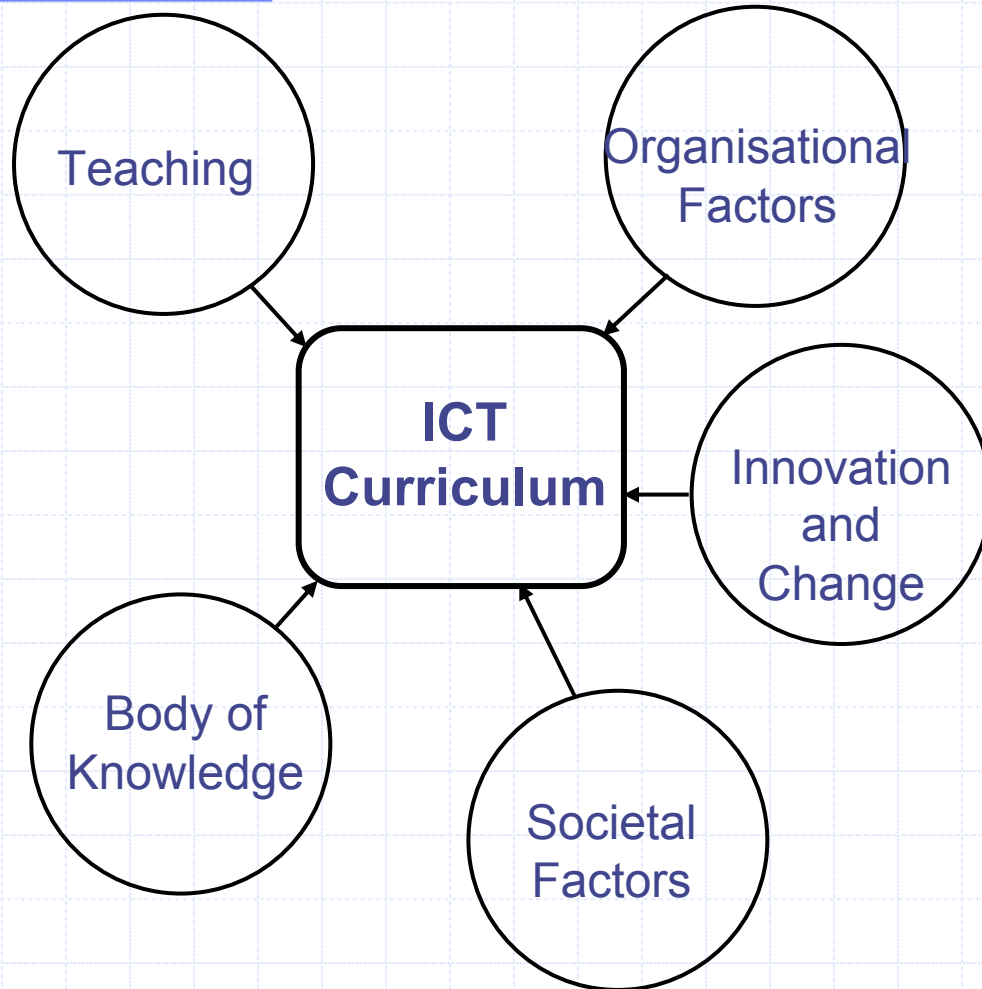
“There is nothing more difficult to handle, more doubtful of success and more dangerous to carry through than initiating changes ... The innovator makes enemies of all those who prospered under the old order, and only lukewarm support is forthcoming from those who would prosper under the new. Their support 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.”

**Niccolò Machiavelli**

Florentine Republic, 1513



# Development of ICT Curriculum



Major influences on development of ICT curriculum

# Influences on the Development of ICT Curriculum

- ◆ Teaching and Academics
- ◆ IS Body of Knowledge
- ◆ Innovation and Change
- ◆ Organisational Factors
- ◆ Social Factors



# Layton's Model of New Subject Development

- ◆ Evolution and development of new *school* subjects in 19<sup>th</sup> century England
  - **Stage 1:** new subjects (subject areas) are initially justified on grounds such as pertinence and utility and teachers are enthusiastic 'amateurs' in the area
  - **Stage 2:** A tradition of scholarly work begins to emerge
  - **Stage 3:** Professional bodies with established rules and values become involved



# Models of Innovation

- ◆ Theory of Reasoned Action (TRA) *Fishbein and Ajzen*
- ◆ Technology Acceptance Model (TAM) *Davis*
- ◆ Innovation Diffusion *Rogers*
- ◆ Innovation Translation (ANT) *Latour, Callon et al.*

# Innovation Translation

- ◆ Actor-Network Theory (ANT) considers the world to be full of hybrid entities containing both human and non-human elements
- ◆ Neither technological nor social determinism
- ◆ ANT offers the notion of heterogeneity to help in explanation of technology adoption
- ◆ Innovations are often not adopted in their entirety but only after *translation* into a more appropriate form for use by the potential adopter



# Curriculum Innovation

## – some examples

### ◆ Visual Basic in a University Curriculum

- Successive **translations** of VB to become: *a screen prototyping tool, a language for Windows operating systems programming, a graphic user interface and event-driven programming language, a language for rapid application development with databases, a language to introduce OO programming concepts*

### ◆ Mobile e-Training in a Factory

- Begin by looking at the human and non-human actors and then examining their interactions

### ◆ Evolution of University e-Business Subjects

- In the late 1990s and early 2000s many universities began to introduce courses in e-Business – later many of these merged into mainstream business areas



# Increasing the Chances of Acceptance

- ◆ It should be possible to enhance the likelihood of successful adoption by paying attention to the lessons suggested by actor-network theory
  - Begin by identifying all relevant actors, both human and non-human (technology)
- ◆ The interactions of some actors will be seen as working towards enhancing adoption of the new technology or idea while others will be seen as acting to oppose it
  - With human actors – attempt to neutralise those who oppose and favour those who are likely to be allies
  - In the case of technology (non-human actors) – look at how factors like ease of use, cost and training could be improved



# Conclusion

- ◆ Information and Communications Technologies are subject to continual rapid change and university curriculum must keep up-to-date and take account of this change
- ◆ In my research I have found that Innovation Translation, informed by Actor-Network Theory, provides a suitable means of exploring these issues particularly when only some aspects of an innovation are adopted

