

# Chapter 13

## Diffusion of Innovation Theory and the Problem of Context for Inter–Organizational Information Systems: The Example of Feral Information Systems

**Luke Houghton**  
*Griffith University, Australia*

**Don Kerr**  
*University of the Sunshine Coast, Australia*

### ABSTRACT

*This chapter argues that diffusion theory models like the technology acceptance model (TAM) need to be rethought of in light of contextual factors that are becoming increasingly important in modern inter-organisational settings. This is due to the growing complexity of organizations with respect to different organisational types, contexts, and political structures that have been shown in research literature to hinder information systems acceptance. The chapter looks at possible contextual factors that are ignored by TAM by critiquing its parent diffusion theory (diffusion of innovations). This approach was considered best as there are many variations of TAM, but the diffusion of innovations (DOI) theory underlies all these variations. The chapter also recommends a way forward for research into inter-organisational information systems by examining an example situation of Feral Information Systems (FIS) to illustrate the problem. The chapter concludes with a discussion about future research directions.*

DOI: 10.4018/978-1-60960-768-5.ch013

## INTRODUCTION

In the short history of the information systems discipline, there has been a healthy debate about the role technology has and how we have come to understand the problem of accepting technological innovations (Davis 1989, Bagozzi 2007). The TAM was built on the backbones of the theory of reasoned action (Hale, Householder and Green 2003) and diffusion of innovations (DOI) (Rogers 1995). The theory of reasoned action assumes a great deal of well thought out straight-forwardness in structured management decision making and ultimately presents the notion that organizational life is linear and actions well planned, as does DOI. Management scholars like Johns (2006) have questioned the straightforward view of research in organizations because it lacks a reasonable explanation of the problem of context. Johns in particular describes context as a form of constraint that, 'can serve as a main effect or interact with personal variables such as disposition to affect organizational behavior,' or what he later calls a 'bundle of stimuli'. Such a grouping is unique to each setting and therefore changes in each organization. Johns also argues that findings in organizational behaviour research point towards the idea that many studies owe their findings to contextual variables that aren't described or clearly articulated. Very few scholars in the information systems field have attempted to map or even discuss these problems in relation to inter-organizational information systems.

This concern about how context affects the acceptance of inter-organizational information systems has manifested itself in information systems research through an emerging view of the problem of feral information Systems (Kerr, Houghton and Burgess 2007). Feral information systems (FIS) are defined as:

"An information system [computerised] that is developed by individuals or groups of employees to help them with their work, but is not condoned by management nor is part of the corporation's

accepted information technology infrastructure. Its development is [or may be] designed to circumvent existing organisational information systems" (Houghton and Kerr, 2006, p 137, Kerr Houghton and Burgess 2007)).

The original concern for Feral Information Systems comes from a research project (cited above) conducted in 2004-2008 in which key actors were found to be building deliberately working around systems. After two different data collection phases, the authors found significant evidence of systems that existed without official consent, support or IT architecture. The term 'feral' was applied to these kinds of information systems because much like 'feral' children or people who wander outside the boundaries of society, they continue to exist and grow independent to the mainstream. The systems found by the authors were created with the express purpose of augmenting; working around and bypassing existing 'sanctioned' information systems architecture. A key point here is that the purpose of the system's creation suits the social network that drives it. For example, an FIS belongs to a culture that believes it's necessary to work around established information systems architecture. FIS can also be thought of as a reaction to rejecting technology because of its cumbersome nature, the fact that it doesn't match workflow (see Alter 2004) and a host of other factors discussed by authors like Orlikowski (1992).

Orlikowski highlights a constructivist approach, arguing that technology is a byproduct and facilitator of human accomplishment and a part of the social order, our norms and ideas. Technology becomes an extension of the stratification and intentionality of its users, part of the constitutional properties of the organization and most importantly the tools for significance, power and legitimizing of practices. FIS can be seen as part of a constitutional context of an organization and part of the social network that makes practice. The technology is merely the *byproduct* of the social interactions around the system.

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/diffusion-innovation-theory-problem-context/61614](http://www.igi-global.com/chapter/diffusion-innovation-theory-problem-context/61614)

## Related Content

---

### Supply Chain Reengineering: A Case Study

David J. Newlands (2012). *Information Systems Reengineering for Modern Business Systems: ERP, Supply Chain and E-Commerce Management Solutions* (pp. 201-218).

[www.irma-international.org/chapter/supply-chain-reengineering/63251](http://www.irma-international.org/chapter/supply-chain-reengineering/63251)

### Using Actor-Network Theory to Research the Adoption of Inter-Organizational Information Systems

Jim Underwood and Bruce McCabe (2012). *Inter-Organizational Information Systems and Business Management: Theories for Researchers* (pp. 83-98).

[www.irma-international.org/chapter/using-actor-network-theory-research/61607](http://www.irma-international.org/chapter/using-actor-network-theory-research/61607)

### MIS Infrastructure to Support Business Process and Operations Outsourcing

(2012). *Management Information Systems for Enterprise Applications: Business Issues, Research and Solutions* (pp. 152-175).

[www.irma-international.org/chapter/mis-infrastructure-support-business-process/63524](http://www.irma-international.org/chapter/mis-infrastructure-support-business-process/63524)

### Intelligent Decision Making and Risk Analysis for IT Management Processes

Masoud Mohammadian and Ric Jentzsch (2012). *Cases on E-Readiness and Information Systems Management in Organizations: Tools for Maximizing Strategic Alignment* (pp. 255-276).

[www.irma-international.org/chapter/intelligent-decision-making-risk-analysis/61104](http://www.irma-international.org/chapter/intelligent-decision-making-risk-analysis/61104)

### Developing Project Team Cohesiveness in a Virtual Environment

Lisa Toler (2016). *Strategic Management and Leadership for Systems Development in Virtual Spaces* (pp. 136-159).

[www.irma-international.org/chapter/developing-project-team-cohesiveness-in-a-virtual-environment/143513](http://www.irma-international.org/chapter/developing-project-team-cohesiveness-in-a-virtual-environment/143513)