

**Chapter 16****Evaluating Evolutionary
Information Systems: A Post-
Modernist Perspective**

Nandish V. Patel
Brunel University, UK

INTRODUCTION

Until the beginning of the 1990s, information systems (IS) were generally viewed as largely a support for business activity and were justified using cost accounting techniques. A proposed system would be developed if it could be shown that it would reduce operating costs or result in other productivity increases. No consideration was given to other benefits of an intangible or even strategic nature. As the deployment of information technology (IT) spread from operational to tactical support, the need to assess or evaluate its contribution to organisational performance and organisational reconfiguration attracted researchers' interests. Yet the same genre of cost accounting based evaluation techniques were used.

Now, as we enter the new century, IS are regarded as an essential feature of doing business, and many new kinds of businesses, such as Web-based ones, organise their business activity around IT, rather than organise the IT around the business. Executives especially regard IS as strategic tools. We are in an era of Internet-based businesses, reconfiguration of business processes with integrated IT/IS, and traditional businesses which now have to use the World Wide Web to remain viable. In this new era, the approach to IT/IS evaluation is still typically controlled using budgets and year-to-year comparisons, and by comparisons with other business costs such as human resource or production costs. With this plethora of IT/IS deployment, the

Previously Published in *Information Technology Evaluation Methods & Management*, edited by Wim van Grembergen, Copyright © 2001, Idea Group Publishing.

This chapter appears in the book, *Information Systems Evaluation Management* by Wim van Grembergen. Copyright © 2002, IRM Press, an imprint of Idea Group Inc.

actual benefits to business of introducing and *using* IS are proving inherently difficult to *measure*.

However, many of the IS in use in modern business organisations may be regarded as *evolutionary information systems* (EIS). It is argued here that EIS cannot be measured using cost-based accounting methods, or methods that seek to quantify benefits and costs in other ways. Instead, an interpretative approach is required that focuses on the subjective utility or value of IS to individuals, groups, or organisations. Such an approach is explored in this chapter.

To characterise evolutionary systems development and EIS some examples are necessary. Examples of evolutionary systems development are prototyping (Bowen, 1994) and Rapid Application Development (Pressman, 1997), amongst others. There are also developments in evolving legacy systems (Warren, 1999) that are at present not considered in IT/IS evaluation. There is no evidence of evaluation methods that consider the improvement or enhancements made to IS through maintenance activity. The effort spent in systems maintenance, often quoted as sixty to seventy per cent of the cost of systems (Pressman, 1997), questions the value of both *ex ante* and *ex post* evaluation. Through maintenance activity it is often the case that the actual IS in operation is significantly different from the one that would have been evaluated before or after it was built. Such activity in systems development and systems usage is here termed EIS.

There are different perspectives on EIS (Land, 1982). An EIS may be a named system that is developed through time. The system changes from its inception through development to operation and final replacement. It may be regarded as the management of IT or IS over a period of time leading to maturity of systems. Finally, an EIS may be seen in a broader context in society, not solely concerned with individual systems, but with the diffusion and growth of IS through out society. A classic example of the latter is the World Wide Web

EIS can be distinguished from other IS along various dimensions, as shown in Table 1. User requirements are a critical distinguishing factor of EIS. Such systems incorporate changing user requirements. Changing user requirements requires changeable systems functionality, which is another

Table 1: Distinction Between Evolutionary and Non-Evolutionary IS

	Evolutionary IS	Non-Evolutionary IS
User Requirements	Changing, Ongoing	Established, fixed
System Functionality	Changeable	Fixed, non-changeable
Adaptability	Yes	No

17 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/evaluating-evolutionary-information-systems/23439

Related Content

Mobile Batch Tracking: A Breakthrough in Supply Chain Management

Walter Huerster, Hartmut Feuchtmueller and Thomas Fischer (2010). *Strategic Information Systems: Concepts, Methodologies, Tools, and Applications* (pp. 978-983).

www.irma-international.org/chapter/mobile-batch-tracking/36737

Supporting Structured Group Decision Making Through System-Directed User Guidance: An Experimental Study

Harold J. Lagroue III (2010). *Strategic Information Systems: Concepts, Methodologies, Tools, and Applications* (pp. 1574-1591).

www.irma-international.org/chapter/supporting-structured-group-decision-making/36776

A Comprehensive Analysis of Congestion Control Models in Wireless Sensor Networks

Sangeetha Ganesan, Vijayalakshmi Muthuswamy, Ganapathy Sannasi and Kannan Arputharaj (2018). *International Journal of Strategic Information Technology and Applications* (pp. 15-37).

www.irma-international.org/article/a-comprehensive-analysis-of-congestion-control-models-in-wireless-sensor-networks/239846

The Strategic Implications of E-Network Integration and Transformation Paths for Synchronizing Supply Chains

Minjoon Jun, Shaohan Cai and DaeSoo Kim (2010). *Strategic Information Systems: Concepts, Methodologies, Tools, and Applications* (pp. 1870-1888).

www.irma-international.org/chapter/strategic-implications-network-integration-transformation/36794

Challenges in Developing a Knowledge Management Strategy: A Case Study of the Air Force Materiel Command

Summer E. Bartczak, Jason M. Turner and Ellen C. England (2009). *Selected Readings on Strategic Information Systems* (pp. 76-80).

www.irma-international.org/chapter/challenges-developing-knowledge-management-strategy/28689