



HOUSE OF  
BEAUTY  
BRANDS



Information Systems Journal / Volume 12, Issue 4 / p. 321-338

## Towards a framework for evaluating investments in data warehousing

Ailish Counihan, Pat Finnegan, David Sammon

First published: 15 October 2002

<https://doi.org/10.1046/j.1365-2575.2002.00134.x>

Citations: 14

### Abstract.

Data warehousing technology offers organizations the potential for much greater exploitation of informational assets. However, the evaluation of potential investments in this technology poses problems for organizations as traditional evaluation methods are constrained when dealing with strategic IT applications. Nevertheless, many organizations are procedurally obliged to use such methods for evaluating data warehousing investments. This paper identifies five problems with using such methods in these circumstances: evaluating intangible benefits; making the relationship between IT and profitability explicit; dealing with the vanishing status quo; dealing with the extended investment time frame; and evaluating infrastructural investments. The authors studied how four organizations in the UK and Ireland attempted to overcome these problems when introducing data warehousing, and propose a framework for evaluating data warehousing investments. This framework consists of a high-level analysis of the economic environment and of the information intensity of the relationship between the organization and its customers. Based on the outcome of this analysis, the authors propose four factors that have to be managed during the evaluation process in order to ensure that the limitations of the traditional evaluation techniques do not adversely affect the evaluation process. These factors are: commitment and sponsorship; the approach to evaluation; the time scale of benefits; and the appraisal techniques used.

### references

Arapoglou, A., Serafeimidis, V. & Doulidis, G. (1997) Rationale and management of IT investments in the case of Greece. In: Proceedings of the 5th International Conference on Information Systems, Ireland.

| [Google Scholar](#) |

Armstrong, R. (1996) Data warehousing: clearing the confusion. White paper, NCR Corp. <http://www3.ncr.com/papers.html>.

| [Google Scholar](#) |

Babcock, C. (1995) Slice, dice and deliver. *Computerworld*, 29, 129–132.

| [Google Scholar](#) |

---

Ballantine, J. & Stray, S. (1998) Financial appraisal and the IS/IT investment decision making process. *Journal of Information Technology*, 13, 3–14.

| [Web of Science®](#) | [Google Scholar](#) |

---

Barquin, R.C. (1996) On the first issue of the *Journal of Data Warehousing*. *Journal of Data Warehousing*, 1, 2–6.

| [Google Scholar](#) |

---

Benbasat, I. (1987) An analysis of research methodologies. In: *The Information Systems Research Challenge*. F.W. McFarlan (ed.). Harvard Business School Press, Boston.

| [Google Scholar](#) |

---

Berson, A. & Smith, S.J. (1997) *Data Warehousing, Data Mining and OLAP*. McGraw-Hill, New York.

| [Google Scholar](#) |

---

Broadbent, M. & Weill, P. (1997) Management by maxim: how business and IT managers can create IT infrastructures. *Sloan Management Review*, Spring, 77–92.

| [Web of Science®](#) | [Google Scholar](#) |

---

Chapman, P. (1988) All benefits are tangible – I just can't get my hands on them. *IMDS, Jan/Feb*, 23–25.

| [Google Scholar](#) |

---

Clarke, R. & Stevens, K. (1997) Evaluation or justification? The application of cost/benefit analysis to computer matching schemes. In: Proceedings of the European Conference in Information Systems, Cork, Ireland.

| [Google Scholar](#) |

---

Clemons, E.K. & Weber, B.W. (1990) Strategic information technology investments: guidelines for decision making. *Journal of Management Information Systems*, 7, 9–28.

| [Google Scholar](#) |

---

Fitzgerald, G. (1998) Evaluating information systems projects: a multidimensional approach. *Journal of Information Technology*, 13, 15–27.

| [Web of Science®](#) | [Google Scholar](#) |

Francett, B. (1994) Decisions, decisions: users take stock of data warehouse shelves. *Software Magazine*, 14, 63–70.

| [Google Scholar](#) |

---

Gray, P. & Watson, H.J. (1998) *Decision Support in the Data Warehouse*. Prentice Hall PTR, New Jersey.

| [Google Scholar](#) |

---

Griffiths, C. (1994) Responsibility for IT: a grey area of management. In: *Information Management: the Evaluation of Information Systems Investments*. L. Wilcocks (ed.). Chapman & Hall, London.

| [Google Scholar](#) |

---

Grindley, K. (1991) *Managing IT at Board Level*. Pitman, London.

| [Google Scholar](#) |

---

Hochstrasser, B. (1990) Evaluating IT investments – matching techniques to projects. *Journal of Information Technology*, 5, 215–221.

| [Google Scholar](#) |

---

Hopwood, A.G. (1983) Evaluating the real benefits. In: *New Office Technology: Human and Organisational Aspects*. H.J. Otway & M. Peaty (eds). Printer, London.

| [Google Scholar](#) |

---

Huerta, E. & Sanchez, P.J. (1999) Evaluation of information technology: strategies in Spanish firms. *European Journal of Information Systems*, 8, 273–283.

| [Web of Science®](#) | [Google Scholar](#) |

---

Inmon, W.H. (1996) *Building the Data Warehouse*. Wiley, Chichester.

| [Google Scholar](#) |

---

Inmon, W.H., Zachman, J.A. & Geiger, J.G. (1997) *Data Stores, Data Warehousing and the Zachman Framework: Managing Enterprise Knowledge*. McGraw-Hill, New York.

| [Google Scholar](#) |

---

Irani, Z. & Love, P.E.D. (2001) The propagation of technology management taxonomies for evaluating investments in information systems. *Journal of Management Information Systems*, 17, 161–177.

| [Web of Science®](#) | [Google Scholar](#) |

Keen, P. (1981) Value analysis: justifying decision support systems. *MIS Quarterly*, 1, 1-14.

| [Web of Science®](#) | [Google Scholar](#) |

---

Kelly, S. (1996) *Data Warehousing: the Route to Mass Customization*. Wiley, Chichester.

| [Google Scholar](#) |

---

Kelly, S. (1997) *Data Warehousing in Action*. Wiley, Chichester.

| [Google Scholar](#) |

---

Ladley, J. (1997) Operational data stores: building an effective strategy. In: *Data Warehouse: Practical Advice from the Experts*. J. Bischoff & T. Alexander (eds). Prentice Hall, New Jersey.

| [Google Scholar](#) |

---

Lee, S.C. (2001) Modeling the business value of information technology. *Information and Management*, 39, 191-210.

| [Web of Science®](#) | [Google Scholar](#) |

---

McAulay, M.L. (2000) Of clouds and clocks: an approach to information technology evaluation and personal freedom. *Southern African Business Review Special Issue on Information Technology*, 4, 7-13.

| [Google Scholar](#) |

---

Man, D. (1996) Answering some common data warehousing questions. *Direct Marketing*, Dec, 12-14.

| [Google Scholar](#) |

---

Marquez, J. (1997) Creating a business case. In: *Data Warehouse: Practical Advice from the Experts*. J. Bischoff & T. Alexander (eds). Prentice Hall, New Jersey.

| [Google Scholar](#) |

---

Marshall, C. & Rossman, G. (1989) *Designing Qualitative Research*. Sage Publications, CA.

| [Google Scholar](#) |

---

Mattison, R. (1996) *Data Warehousing: Strategies, Technologies and Techniques*. McGraw-Hill, New York.

| [Google Scholar](#) |

Miles, M.B. & Huberman, A.M. (1994) Qualitative Data Analysis: an Expanded Sourcebook. Sage Publications, CA.

| [Google Scholar](#) |

---

Nixon, B. (1995) Technology investment and management accounting practice. *British Journal of Management*, 6, 271-288.

| [Google Scholar](#) |

---

Ross, J.W., Beath, C.M. & Goodhue, D.L. (1996) Develop long-term competitiveness through IT assets. *Sloan Management Review*, Fall, 31-42.

| [Google Scholar](#) |

---

Saarinen, T. (1996) SOS: expanded instrument for evaluating information system success. *Information and Management*, 31, 108-118.

| [Web of Science®](#) | [Google Scholar](#) |

---

Sach, T. (1996) Building a data warehouse-the key technical decisions. *Data Warehouse Report*, 8, 8-11.

| [Google Scholar](#) |

---

Sauls, W. (1996) Leveraging the data warehouse. *Management Accounting*, Oct, 39-43.

| [Google Scholar](#) |

---

Singh, H.S. (1998) *Data Warehousing Concepts, Technologies, Implementations, and Management*. Prentice Hall PTR, New Jersey.

| [Google Scholar](#) |

---

Smithson, S. & Hirschheim, R. (1998) Analysing information systems evaluation: another look at an old - problem. *European Journal of Information Systems*, 7, 158-174.

| [Web of Science®](#) | [Google Scholar](#) |

---

Stone, E. (1978) *Research Methods in Organisational Behaviour*. Goodyear Publishing, California.

| [Google Scholar](#) |

---

Strassman, P. (1990) *The Business Value of Computers*. The Information Economic Press, New Canaan, pp. 73-99.

| [Google Scholar](#) |

Thomas, L.C. (1992) Financial risk management models. In: *Risk Analysis Assessment and Management*. J. Ansell & F. Wharton (eds). Wiley, Chichester.

| [Google Scholar](#) |

---

Ward, J. (1994) A portfolio approach to evaluating information systems investments and setting priorities. In: *Information Management: the Evaluation of Information Systems Investments*. L. Wilcocks (ed.). Chapman & Hall, London.

| [Google Scholar](#) |

---

Ward, J., Taylor, P. & Band, P. (1996) Evaluation and realization of IS/IT benefits: an empirical study of current practice. *European Journal of Information Systems*, 4, 214–225.

| [Web of Science®](#) | [Google Scholar](#) |

---

Weill, P. & Olson, M.H. (1989) Managing investment in information technology: mini case examples and implications. *MIS Quarterly*, March, 3–17.

| [Web of Science®](#) | [Google Scholar](#) |

---

Wilcocks, L., ed. (1994) *Information Management*. Chapman & Hall, London.

| [Google Scholar](#) |

---

Wilcocks, L. & Lester, S. (1994) Evaluating the feasibility of information systems investments: recent UK evidence and new approaches. In: *Information Management: the Evaluation of Information Systems Investments*. L. Wilcocks (ed.). Chapman & Hall, London.

| [Google Scholar](#) |

---

Yin, R. (1989) *Case Study Research: Design and Methods*. Sage Publications, CA.

| [Web of Science®](#) | [Google Scholar](#) |

---

Zagelow, G. (1997) Data warehousing: client/server for the rest of the decade. In: *Building, Using, and Managing the Data Warehouse*. R. Barquin & H. Edelstein (eds). Prentice Hall, New Jersey.

| [Google Scholar](#) |

---

## ABOUT WILEY ONLINE LIBRARY

[Privacy Policy](#)

[Terms of Use](#)

[About Cookies](#)

[Manage Cookies](#)

[Accessibility](#)

[Wiley Research DE&I Statement and Publishing Policies](#)

[Developing World Access](#)

## HELP & SUPPORT

[Contact Us](#)

[Training and Support](#)

[DMCA & Reporting Piracy](#)

## OPPORTUNITIES

[Subscription Agents](#)

[Advertisers & Corporate Partners](#)

## CONNECT WITH WILEY

[The Wiley Network](#)

[Wiley Press Room](#)

---

Copyright © 1999-2024 John Wiley & Sons, Inc or related companies. All rights reserved, including rights for text and data mining and training of artificial intelligence technologies or similar technologies.

**WILEY**