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Technologies: Effects on Accountants, Accounting and Organizations*

# **Relationships and Effects of Enterprise Resource Planning Systems on Management Accounting and Performance**

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# Background

- Enterprise resource planning (ERP) systems are still relatively new.
- It is difficult to untangle complex and dynamic phenomena such as ERP systems, management control and performance.
- In addition, relationships, and the effects of ERP systems on control and performance contribute to the complexity.

# Background

- However, MA scholars have succeeded to address such questions in:
  - practitioner journals, e.g.:
    - *Cooper & Kaplan* (1998) : The Promise – and Peril – of Integrated Cost Systems.
    - *Scapens et al.* (1998): SAP Integrated Information Systems and the Implications for Management Accountants.
    - *Davenport* (2000) : Putting the Enterprise into the Enterprise Systems.
  - edited books, e.g., Bhimani (2003) Management Accounting in the Digital Economy.
  - scholarly journals: AOS, EAR, IJAIS, MAR...
  - research monographs.

*Granlund & Malmi (2000)*

Moderating impact of ERPS on management accounting: A lag or permanent outcome?

*Chapman & Chua (2003)*

Technology-driven integration, automation and standardization of business processes.

*Hartmann & Vaassen (2003)*

The changing role of management accounting and control systems.

*Hyvönen, T. (2003)*

Management accounting and information systems: ERP versus BoB.

*Lodh & Graffikin (2003)*

Implementation of an integrated accounting and cost management system using SAP system: A field study.

*Scapens & Jazayeri (2003)*

ERP systems and management accounting change: Opportunities or impacts?

*Quattrone & Hopper (2004)*

What does organizational change mean? Speculations on a taken for granted category.

*Dechow & Mouritsen (2005)*

Enterprise resource planning systems, management control and the quest for integration.

*Rom & Rohde (2007)*

Management accounting and integrated information systems: A literature review.

*Hyvönen, T., Järvinen & Pellinen (2008)*

A virtual integration – The management control system in a multinational enterprise

## STUDIES ON ERP SYSTEMS AND PERFORMANCE

<i>Poston &amp; Grabski (2001)</i>	Financial impacts of enterprise resource planning implementations.
<i>Hunton, Lippincott &amp; Reck (2003)</i>	Enterprise resource planning systems: Comparing performance of adopters and non-adopters.
<i>Matolcsy, Booth, Wieder (2005)</i>	Economic benefits of enterprise resource planning systems: some empirical evidence.
<i>Arnold (2006)</i>	Behavioral research opportunities: Understanding the impact of enterprise systems.
<i>Nicolaou &amp; Bhattacharya (2006)</i>	Organizational performance effects of ERP system usage: The impact of post-implementation changes.
<i>Rikhardsson &amp; Kraemmergaard (2006)</i>	Identifying the impacts of enterprise system implementation and use: Examples from Denmark.
<i>Grabski &amp; Leech (2007)</i>	Complementary controls and ERP implementation success.
<i>Hyvönen, J. (2007)</i>	Strategy, performance measurement techniques and information technology of the firm and their links to organizational performance.
<i>Wier, Hunton &amp; HassabElnaby (2007)</i>	Enterprise resource planning systems and non-financial performance incentives: The joint impact on corporate performance.

# ERP systems, Performance & Management Control

- Poston & Grabski (2001): The productivity paradox.
  - Links to cost/sales ratio, but not residual income.
- Hunton et al. (2003): A difference in performance between adopters and non-adopters of ERPs
- Adler & Borys (1996): most types of automation might benefit from an enabling approach to control. It consists of:
  - *Repair,*
  - *Internal transparency,*
  - *Global transparency, and*
  - *Flexibility.*

# ERP systems, Performance & Management Control

- In terms of Ahrens & Chapman (2004):
  - *Repair* attends to the breakdown of control processes and provides capabilities for fixing them, preferably by the users of the control systems.
  - *Internal transparency* refers to an understanding of the working of local processes.
  - *Global transparency* refers to an understanding of where and how the local processes fit into the organization as a whole.
  - *Flexibility* refers to the organizational members' discretion over the use of control systems (i.e, to the extent that they can turn them off).
- Ahrens & Chapman (2004): Enabling control harnesses local flexibility to help managers respond to emerging issues in their work
  - builds a valuable managerial competence!
- Ittner & Larcker (2003): System success versus performance.

*C.S. Chapman, L.-A. Kihn / Accounting, Organizations and Society 34 (2009) 151–169*

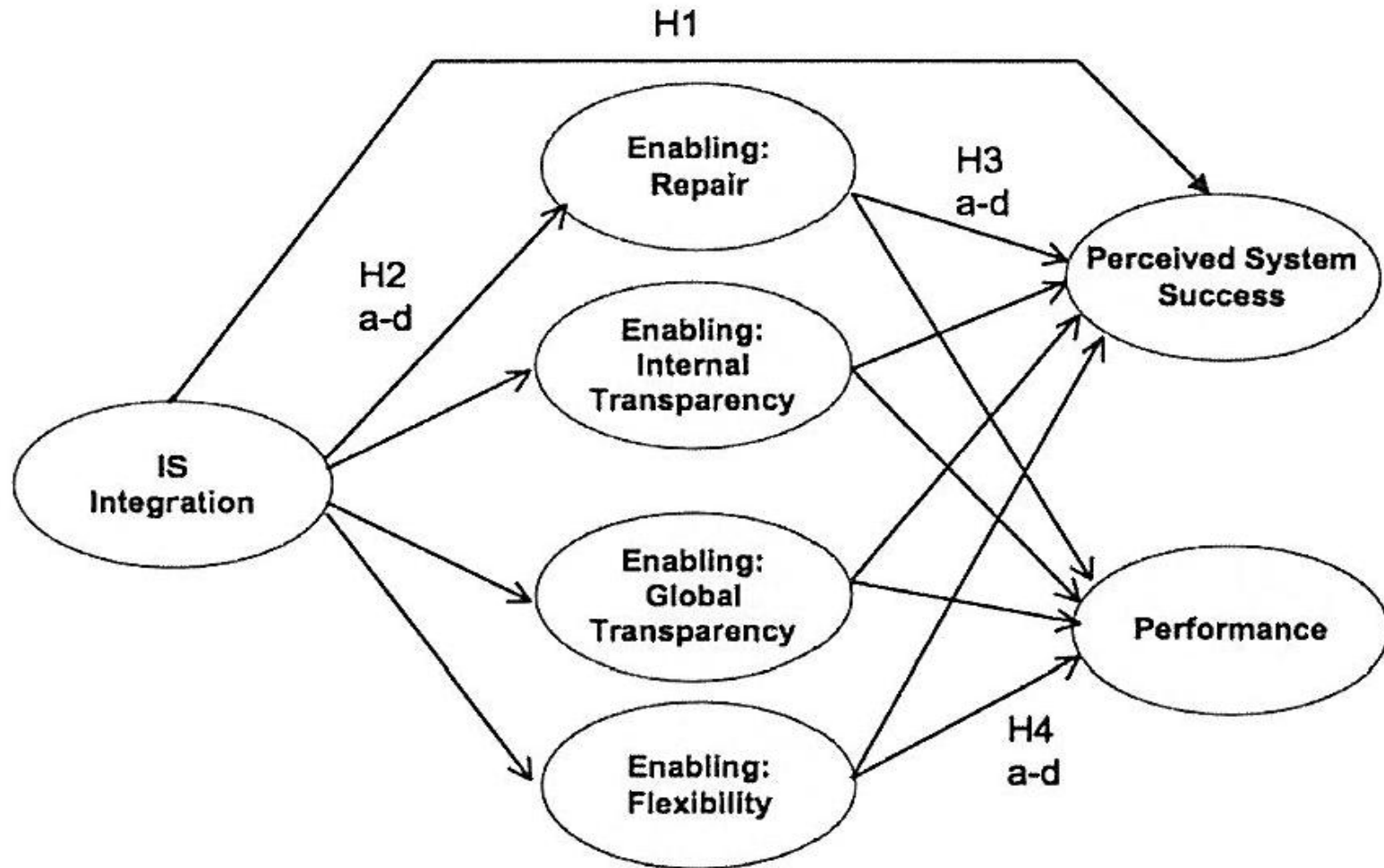


Fig. 1. Structural model: IS integration, enabling use of budgeting and outcomes.



## The Chapman & Kihn (2009) Study:

*Information system integration, enabling control and performance*

- Two-rounds of interviews of nine people using SAP in a highly successful business in Helsinki, Finland.
- Survey mailed to 300 Finnish managers in 2004.
- Measures:
  - Govindarajan & Gupta (1985): organizational performance.
    - Financial performance
    - Market performance
    - Social responsibility
  - Developed new measures for:
    - IS Integration,
    - Enabling budgetary processes, and
    - System success.
- 169 usable responses (56.3%)
- PLS analysis, reliability and validity tests.

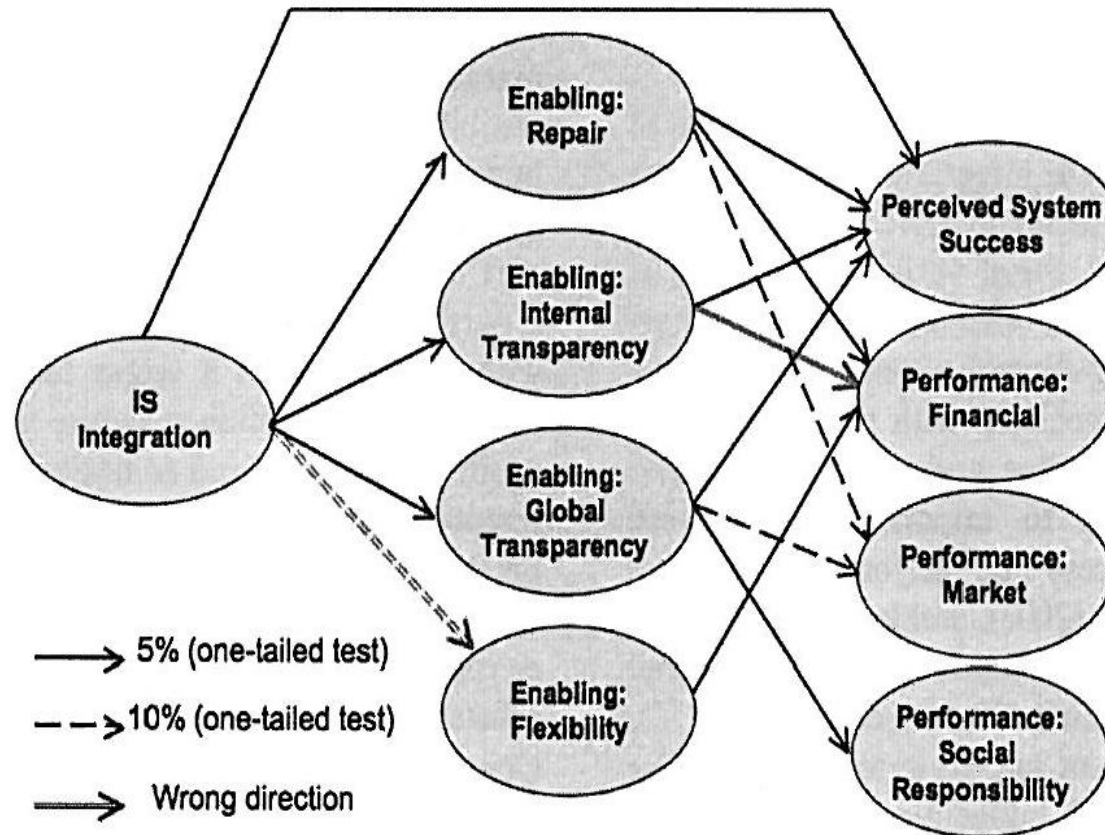
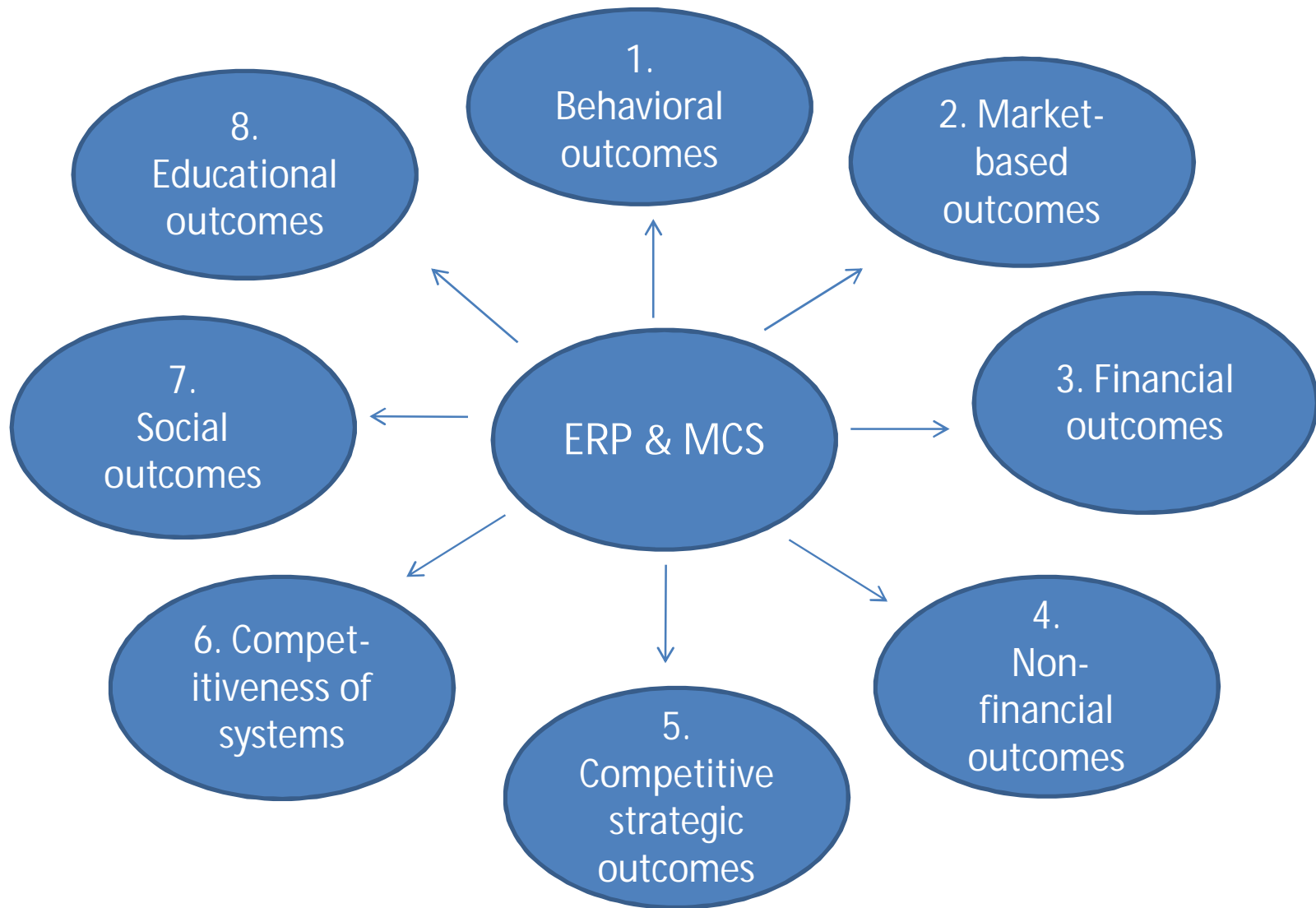


Fig. 2. Partial least squares model: IS integration, enabling use of budgeting and outcomes ( $n = 169$ ). (Only statistically significant paths are shown).

# Potential areas of future research

- How are management accounting systems used?
  - We used enabling control, although it is not the only way:
    - flexible/inflexible (Morsicato & Diamond, 1980)
    - tight/loose (Simons, 1988)
    - interactive/diagnostic (Simons, 1990, 1995)
    - enabling/coercive (Adler & Borys, 1996, Ahrens & Chapman, 2004, Naranjo-Gil & Hartmann, 2006)
- What further motivates enabling control?
  - We focused on IS Integration. See, Rom & Rohde (2007) for further suggestions.
- What are the performance effects of IT systems?
  - We analyzed perceived system success, financial & nonfinancial performance and social responsibility, but there are also other possibilities.

# Performance Outcomes



**TABLE 4.**

*Frequency of occurrence of a performance measurement instrument in 100 accounting studies.*

Source of measure:	Measure:	Number of times mentioned:
No citation		63
Mahoney et al. (1963, 1965)	Managerial performance	11
Weiss, Davis, England, and Lofquist (1967)	Job satisfaction	3
Govindarajan (1984)	Firm/subunit/job performance	3
Chow (1983)	Experimental task performance	2
Firm data	Attainment of goals	2
Kahn, Wolfe, Quinns, Snoek and Rosenthal(1964)	Job-related tension	2
Lawler and Suttle (1973)	Work motivation	2
Van de Ven and Ferry (1980)	Managerial performance	2
AICPA	Test performance	1
Ashton (1974)	Task performance	1
Belleman, Johnson & Payne (1990)	Effort level	1
Bonner & Lewis (1990)	Auditor performance	1
Chenhall (1993)	Self-rated sales growth, ROA, etc.	1
Chow, Cooper and Walter (1988)	Experiment performance	1
Coackley & Loebbecke (1985)	Test performance	1
Collins (1978)	Budget attitude	1

Drazin and Van de Ven (1985)	Job satisfaction	1
Dunette and Borman (1979)	Job performance	1
Fisher, Frederickson & Pfeffer (2002)	Subordinate performance	1
Gregson, Wendell & Aono (1994)	Role stress	1
Industry analysts	Operating ratio & net income	1
Kalbers & Fogarty (1995)	Job performance	1
Kenis (1979)	Budgetary performance	1
Kinney (1987)	Test performance	1
Management consulting firm	Self-rated financial measures	1
Merchant (1981)	Overall performance	1
Milani (1975)	Attitudes towards job and company	1
Mowday, Steers and Porter (1979)	Organizational commitment	1
Nelson, Libby, and Bonner (1995)	Audit performance	1
Palmrose (1989)	Total audit hours/total assets	1
Read (1962)	Attitudes toward supervisor	1
Shenkar – Dvir (1996)	Project performance	1
Steers (1975)	Company performance	1
<u>Young</u> (1985)	Experiment performance	1
<b>Total</b>		<b>116</b>