

The benefits of e-business performance measurement systems

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1. Introduction

Over the last decade organisations of all kinds have rushed to join the online e-business community. By 2005 e-business was commonplace in British business practice.

According to the European Commission, British use of the Internet in business was the highest in Europe with over 98% of British firms having some kind of on-line presence and e-business accounted for 14% of business turnover (E-business watch, 2005). Internet use in the general population is amongst the highest in the world, with over 63% of the UK population having access (Internet World Stats, 2006).

Whilst this has undoubtedly fuelled the growth of business to consumer (B2C) e-business, it is business to business (B2B) transactions that account for most of the financial value of e-business. In 2005, for every £100 of sales over the Internet, £25 was made by households, whilst £75 was by businesses (ONS, 2005).

The research executive summary describes investigations into how organisations in the UK have adapted their performance measurement systems and practices, in response to changes in their business operations resulting from the adoption of e-business.

1.1 Overview of project

In order to participate in the new online business environment, businesses have had to make significant financial investments, not only in the necessary technologies but also in the processes and people necessary to operate them.

Such investment might be justified on the basis of the increased efficiencies available from online operations or from improved effectiveness available from complementarities i.e. from bundling of products and services, from lock-in i.e. increasing switching costs, and from novelty i.e. innovative products, new business models etc. (Amit and Zott, 2001).

Whether evaluating e-business investment proposals or monitoring the resulting on-line business operations, an appropriate system for measuring the effectiveness of such expenditure is required.

Many e-business researchers have argued that new kinds of performance measurement are needed for e-businesses (e.g. Tonchia, 2002). It is currently far from clear how, or even if, existing models of performance measurement need to be modified to make them suitable for the online environment.

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What little empirical research has been conducted in this field has pointed to widespread dissatisfaction amongst e-businesses with their existing measures (Marr and Neely, 2001) and to the lack of any consensus amongst practitioners, as to which measures are effective for measuring e-business performance. Further the accuracy of such measures that are in use is questioned (Hinton and Barnes, 2005a). This research project thus aims to identify the features of an effective e-business performance measurement system.

1.2 Findings

The study revealed:

- a variety of approaches to adapting performance measurement systems for the online environment, with no common framework apparent
- considerable disparity in the level of success achieved in developing suitable performance measures for e-business
- that although most organisations were measuring more than one aspect of e-business performance, no organisation had a true portfolio of e-business performance metrics
- there was no sense of balance between performance measures used, with the measurement focus being either financial, customer or process metrics
- that whilst participants reported a common concern to link e-business performance to organisational objectives, in reality practice appropriate to this end was similarly patchy

- that not all organisations had performance metrics appropriate to their for e-business aims
- that none of the case organisations used a performance measurement framework (such as the Balanced Scorecard) to underpin their e-business performance measurements
- that the approach to adapting performance measurement systems for e-business was ad hoc and incremental, with a marked reluctance to embark on major overhauls of existing performance measurement systems.

1.3 Context

The widespread adoption of e-business has:

- a) necessitated significant financial investments by the affected organisations
- b) resulted in changes to business processes and operating procedures.

These factors might have led to widespread concern about performance improvement, and some debate the adequacy of existing performance measurement systems (e.g. the performance measurement matrix, the performance prism, the Business Excellence Model, and the Balanced Scorecard (BSC)) for the on-line trading environment.

1.4 Literature review

A review of the wider e-business literature suggests that an e-business performance measurement system should be concerned with the following:

- a) the performance of the organisation's website
- b) the performance of business processes
- c) the performance of customers
- d) linking e-business performance to business strategy.

The main points that emerge from the literature review are:

1. The features of an effective performance measurement system include a portfolio of (financial and non-financial) measures.
2. Concerns exist regarding:
 - i) the installation and operating costs
 - ii) the impact of increasingly comprehensive performance measurement systems.
3. That despite the widespread adoption of e-business, there have been surprisingly few reports of organisations adopting their performance measurement systems for the online environment. Neither does there seem to have been much interest from theoreticians in the development of e-business performance measurement systems.

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4. Although there is no clear guidance on what an effective business performance measurement system might look like, it might be expected:
 - i) to encompass a range of measures, including those concerned with performance of the website, the performance of e-business processes and performance of customers
 - ii) to be linked to the performance measurement system for all other organisational activities.
5. It seems likely that organisations may be concerned about the difficulties and costs of adapting performance measurement systems for e-business, and what benefits may ensue.

1.5 Research methodology

A case study method, based on qualitative data obtained from key informants within each organisation, was deemed the most suitable approach. (Additional data came from company documents).

In order to ensure that a broad cross section of organisations was included in the research sample, it was decided to set a target number of 12 organisations.

Gathering data of sufficient quality for this study required the identification of appropriate informants within suitable organisations.

The informants used in the research were individuals who had previously engaged in previous survey-based research undertaken by the authors, and who claimed that their organisations were operating e-business performance measurement systems (Hinton and Barnes, 2005b).

As this number fell short of that desired, an additional group of organisations was targeted. This comprised the 2005 winners of the UK government's annual national DTI E-Commerce Awards, all of whom must demonstrate they have achieved tangible gains by using the Internet or other Information & Communications Technologies. This group is worthy of investigation as they comprise leading edge practitioners in e-business. They were approached with a request that they provide data about their performance measurement systems. This resulted in three companies from this group agreeing to participate in the study.

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The case companies selected for study were chosen on an opportunistic basis from organisations identified as being suitable, having managers willing to provide access to facilitate data collection. The case study organisations contained examples from both the public and private sector, manufacturers and service providers, large multi-national quoted companies and small owner-managed businesses.

The principal method of data collection in the research was via face-to-face interviews with a key informant in each organisation. The interviews were semi-structured, enabling researchers to explore interesting avenues for investigation as they emerged.

Such interviews enabled the researcher to get close enough, not only to gather factual data, but also to gain an understanding of actions and meanings in their context (Bryman, 1988). A questioning framework facilitating appropriate focus and bounding of discussions was developed for use by the interviewers.

The questions were designed to facilitate data collection on the following themes:

- the background to the company's use of e-business
- the company's aims and objectives in its use of e-business
- the company's capital investment appraisal process for e-business

- the performance metrics the company uses for e-business
- links between performance metrics for e-business and traditional business
- the origins and development of the company's e-business performance measurement system
- the benefits obtained from the company's e-business performance measurement system
- any shortcomings of the company's e-business performance measurement system.

Ten managers were interviewed in this way. All interviews were tape-recorded for subsequent transcription to facilitate data analysis. All interviews were conducted in 2005.

To facilitate the participation in face-to-face interviews some managers based outside the UK or in remote areas, such individuals contributed to the research via email.

The two data collection methods used resulted in written evidence that could be then be analysed, either in the form of detailed transcriptions (in the case of the face-to-face interviews) or written submissions (in the case of the email respondents).

The approach to data analysis was to identify the main points and themes emerging from the datasets. A descriptive narrative was then produced for each case study organisation, under a broad set of topic headings.

Finally, a cross case analysis was undertaken to deepen understanding and explanation as a means of drawing conclusions from all the data from the study.

Questions which cross sector analysis sought to answer include:

- How do organisations set about justifying the financial investments necessary for e-business, and what performance measures are used in the process?
- Are the metrics used appropriate for each organisation's e-business aims?
- How many and which aspects of e-business performance are measured?
- What is the nature of metrics used (process / customer / web based)?
- How clear is the link between e-business performance metrics and higher level organisational metrics?

The full research report records the information collected from each organisation in the study, from which the summarised findings (see section 1.2) are drawn.

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2. Objectives

The research aims to identify the features of an effective e-business performance measurement system, by studying the performance measurement practices of organisations that seem to have had some success in developing performance measurement systems suitable for the online environment. (These may be considered 'exemplar' organisations).

To facilitate identification of a set of best practice recommendations, the research sought to understand the exact nature of:

- a) the performance measurement systems
- b) practices.

in organisations with distinctive e-business performance metrics.

This should enable what is potentially a set of best practice recommendations to be identified.

Additionally, the research sought to determine:

- the benefits that accrue from the use of these systems
- the origins and process of development of e-business performance measurement systems
- any theoretical basis of e-business performance measurement systems
- the links between the performance measurement systems for e-business and traditional business
- the impact of specific e-business performance measurement systems on business performance.

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3. Implications of the findings for practical application

The research has begun to identify several gaps between the academic literature and current management practice (as detailed in the full research report).

Its findings offer an alternative to the received wisdom in the academic literature (that the BSC and similar frameworks invariably offer best practice), instead suggesting an alternative 'good practice' path that organisations can follow.

The research recommends that organisations give conscious and deliberate consideration to whether they need to change their performance measurement systems radically to accommodate e-business and, on this basis, that they:

1. Foster incremental development of their performance measurement system to accommodate changes in e-business.
2. Work within their existing performance measurement approach, either:
 - a) adapting existing metrics to monitor e-business performance
 - b) simply adding new metrics to the set of performance measures (where these exist).

This offers organisations an appropriate approach within existing resource constraints, as well as addressing the growing concern over the costs associated with performance measurement.

With this in mind:

3. Management accountants should be encouraged to weigh up the relative costs and benefits of the performance measurement system.
4. Academic researchers should consider more closely the impact of theory on the process of organisational performance management, as well as the implications of empirical work on existing theories.

The cases studies put forward substantial qualitative understanding of the issues surrounding performance measurement and e-commerce. However, it is recommended that further cases and survey work be sought to expand the range of industry sectors and scope of performance measurement practice. In particular, the adoption, or otherwise, of best practice advice in performance measurement needs to be more critically assessed with respect to the e-business environment.

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4. Conclusions: lessons learned from the research

The prime conclusion from the investigation is that the organisations studied do not demonstrate the kind of performance measurement practices with regard to their e-business activities, that might have been expected from the literature.

If it is assumed that the case organisations studied are representative of current good practice in e-business performance measurement, it may be concluded that:

1. organisations do not currently feel the need to make major changes to their performance measurement system for e-business, and are content instead to make incremental changes
2. best practice advice in performance measurement (as exemplified by the BSC) may be much less influential than that reported as typical, within the e-business environment.

The research offers an alternative to the received wisdom in the academic literature, namely that the BSC and similar frameworks invariably offer best practice, instead suggesting an alternative 'good practice' path that organisations can follow successfully (as outlined in section 3, above).

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Additional outputs of interest include:

CIMA sponsored Research Report: E-business performance measurement: Internal processes explored, (C. Matthew Hinton, David Barnes, Suzanne Mieczkowska) www.cimaglobal.com

This Research Executive Summary summarises the findings of the CIMA sponsored research project: The benefits of e-business performance measurement systems. This is due to published by Reed Elsevier in 2007.

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