Research Executive Summaries Series

The performance measurement of internal business processes in e-business

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1. Audience

1.1 The project findings will be of interest to executives and business managers of all organisations who are considering investing in, and/or who have managerial responsibility for implementing e-business operations.

2. Overview of Project

2.1 E-business opportunities offer a wide and deep pool of opportunity for organisations, in terms of both incremental process change (reduced cycle times, better sales/marketing activity etc.), and/or radical change (the dismantling and reformulation of traditional business structures).

2.2 The degree and nature of integration of e-business investments varies widely, and a wide variety of new e-business models has emerged. While the new e-business related business models have been explored, there remains little published research on:

- how such investments are managed
- their impact of on internal business processes
- associated approaches to performance measurement.

Without effective performance management of e-business investment projects, dis-aggregation of the contribution of e-business-related channels from that of traditional business channels is difficult.

2.3 The project constitutes an extension to research project (funded by the Open University Business School), which sought to improve the understanding of how organisations engaged in e-business activity operate their business processes for order fulfilment and delivery.

2.4 Data regarding e-business investments was collected through semi-structured interviews with executives responsible for e-business activities, within 12 case study organisations:

- insurance broker/re-insurance business
- mortgage office of large retail bank, that has recently taken over a major competitor
- multinational UK-owned insurance broker
- European owned export credit insurance
- dotcom start up, online provider of credit services
- London-based market maker – online trading facility for small investors
- UK arm of European metals producer
- therapeutic pharmaceuticals research and development organisation, with license to manufacture and sell offerings
- manufacturer of industrial equipment
- small financial management company (customers mainly SMEs)
- purveyor of specialist clothing
- London based legal dotcom.

Each organisation differed in terms of age, type, turnover etc.
2.5 Based on a theoretical framework developed from a review of existing literature, interview questions addressed seven central themes:
• context of the e-business investment
• motivation for the e-business investment
• internal changes resulting from the e-business investment
• external changes arising from the e-business investment
• process management of the e-business investment
• evaluation of the use of e-business
• performance measures for the e-business investment.

2.6 The research examines the extent to which organisations had established a formal performance measurement framework for their e-business investments, and investigates the different performance measures (process or end-state) used.

2.7 The research is designed to highlight any differences in the management of e-business investments between:
• manufacturing and service organisations
• business to business versus business to consumer operations
• clicks and mortar versus dotcom start ups.

2.8 Additionally, the research study attempts to map case study organisations’ performance activity onto a framework that recognises key areas for performance measurement:
• investment measures surrounding the selection and implementation of an e-business system
• performance measures for incremental process improvements
• performance measures for radical process changes
• end-state measures surrounding the performance of the end product or service.

Barriers to e-business development are also explored.

3. Objectives

3.1 The project’s objectives were:
• To investigate the performance measurement implications of e-business.

• To identify how this differs from more mainstream approaches, given e-business’ role in integrating the value chain.

3.2 In meeting these objectives, the project investigates the management of organisations’ investments in e-business, and considers:
• The degree to which clear performance objectives for e-business investments are established.
• The extent to which such objectives are linked to operational performance via the establishment of an appropriate performance measurement system.

4. Related research

4.1 ‘The Impact of e-business on the internal business processes of organisations’, Hinton Dr DC, and Burns D.

5. Findings

5.1 The research report’s findings are essentially descriptive in nature. It is hoped that this description may be used to form the basis of an explanation that may be tested against reality until an explanatory theory can eventually be built.

5.2 Analysis of the data collected reveals:
• Most companies had not yet established a formal performance measurement framework for their e-business systems/investments.
• Although organisations wanted to measure the contribution of their e-business investments, they encountered problems in identifying suitable metrics, and in establishing the accuracy of the metric identified.
• A general lack of both investment appraisal and post investment analysis of the costs and benefits of e-business investments, with only one exception*.
• Where e-business investments focused on securing a radical business change (rather than a minor adjustment to internal operations) none of the case study organisations had established a means of measuring the related performance.

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*The organisation that did operate project evaluation of their e-business investment found it to be a useful activity.
The project focuses especially on the performance measurement of e-business investments, and the researchers note that these may be categorised as being either process or end-state related. The research reports considers the use of each.

### 5.4 Process measures

A number of organisations had tried to develop a range of process measures regarding the performance of their e-business investments including those relating to:
- volume of e-business business
- the number of e-business users
- customer fall off rates
- number of registered buyers
- average value per transaction
- type of client.

For manufacturing companies, the process measures for the performance of e-business applications were invariably adapted from conventional measures. They focused largely on evaluating customer expectations.

### 5.5 End-state measures

Organisations commonly based their end-state measures of e-business investments on some assessment of customer perceptions of the service they receive. (Such assessments were based on marketing activity or more qualitative measures, depending on the nature of the offering as tangible or intangible dominant).

Where end-state measures are surrogate performance measures, the focus is on the performance of the end product or service, and appears to be of most benefit where e-operations are introduced to improve some component of service delivery. As a result, such measures tend to be qualitative in nature, and address key issues around customer satisfaction, retention and perceptions of service or product quality.

### 5.6 Regarding application of the case study material to the performance activity analysis framework, it was evident that despite a clear desire to measure the contribution of their e-business applications, problems arose concerning the issue of what to measure, and how accurate these measures might be in the new context.

### 5.7 The report notes that identification of performance measures is further complicated by the speed of change in the business environment, in terms of:
- application development
- customer take-up
- re-shaping of industry sectors.

### 5.8 Where e-business investments create radical change, none of the companies had found a means of measuring the performance of this new process and industry structure.

### 6. Conclusions

#### 6.1

The main conclusion from the research is that there is a lack of formal performance measurement in e-business, with little evidence of any evaluation of the impact of e-business investments or of the performance of e-operations.

#### 6.2

Where formal performance measures are applied, they are used on an ad hoc basis and there is no consensus as to which e-business performance measures are effective. Common performance measures are frequently adapted from existing traditional measures, where these exist.

#### 6.3

One area of interest that is emerging is the need to measure the performance of customer perceptions of using these new business channels.

#### 6.4

The research findings contribute to a greater understanding of the impact that the adoption of e-business practices is having on the way organisations measure the performance of their internal business processes.
7. Recommendations

The report concludes with the following recommendations:

7.1 Organisations should consider how the new technology can redesign their processes.

7.2 Organisations, management accountants and academic researchers should attempt to map their performance activity. They should seek ways of tracking the positive impact of e-business benefits, and are advised to develop a comprehensive toolbox of measures that may be used as a driver for performance measurement activity.

7.3 Management accountants should be encouraged to promote the use of both qualitative and quantitative performance measures within their organisations.

7.4 Further cases and survey work should be sought, to expand the range of industry sectors and scope of performance measurement practice.

8. Appendices

The report includes the following appendices:

8.1 The impact of e-business on the internal business processes of organisations – A research project at the Open University Business School.

8.2 Advance Question Guidelines for Participants.

8.3 Semi-structured Interview Question Framework.

9. Tables

The report includes the following tables:

9.1 Barriers to E-Commerce Development.

9.2 Breakdown of the twelve case study organisations.

9.3 Performance Measures.

9.4 Cross case comparison (clicks and mortar).

9.5 Cross case comparison (dotcoms).
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