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**Profiling E-business
Practices amongst Small
and Medium-Sized
Enterprises Using a Fit
Perspective**

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Abstract

E-business as a multifaceted application has vast capabilities to support today's business. Nevertheless, these

capabilities do not equally benefit all firms. Therefore, appropriate selection of e-business solutions would substantially enhance firm efficiency and effectiveness. Despite extensive research

in this domain, there are limited works that explore the extent to which SMEs successfully align diverse e-business capabilities to their strategic business functions. This is crucial

considering that SMEs have relatively limited resources and thus make them more selective in e-business-related investments. This study therefore explores the current state of e-

business fit (alignment)
among Malaysian SMEs.
The next attempt is to
reveal any possible
patterns that represent
firms with respect to their
e-business alignment

characteristics. A self-administered survey was conducted on 140 SMEs owner/manager in order to investigate present status of e-business alignment across various business

processes. The results generally indicate that firms perceive a relatively higher level of alignment in terms of information searching, sales, and internal-related functions

relative to other functions. A cluster analysis further classifies firms into three (3) groups with somewhat distinct alignment patterns. Despite several limitations, this study has provided

insights on how e-business penetrates across firm operation and the extent to which it corresponds to the most salient functions of the business. This study, therefore, supports the

claim that SMEs have different priorities over e-business solutions in support of various business functions. These findings have also provided more insights such as why some

firms do not progress into a higher e-business ladder.

Keywords: e-business,
alignment, SMEs, Malaysia

Introduction

Small and Medium-sized Enterprises (SMEs) anchor economic growth of most developing nations considering their

substantial contribution to gross domestic product (GDP) and employment opportunities.

Consequently, the government through several agencies has been

considering various efforts to enhance firms efficiency and productivity. As such, deployment of Information Technology/Information Systems (IT/IS) becomes

one of the catalysts for such efforts.

Internet commercialization further spurs greater interest towards IT/IS usage among firms.

Internet features such as global connectivity and public networking system offer wide range of online-based applications (e-business) as a means to transform various aspects

of business. Specifically, these applications benefit firms in terms of making global presence, improving business process efficiency, and widening market share. Due to varying definitions,

this paper particularly refers to e-business as “*a transformation of key business processes by using an Internet technology*” (Meckel et al, 2004). Therefore, the words e-

business and Internet are used interchangeably throughout this paper.

E-business offers vast capabilities to support business ranging from

information searching,
communication and
transactional-related tasks
(Wilson et al, 2008).
Nonetheless, these
capabilities do not equally
benefit all firms (Roberts &

Toleman, 2007).
Specifically, due to
resources constraint, SMEs
are getting more selective
on e-business related
investment. Thus, their e-
business deployment could

have been restricted to certain aspects of firm operation. Most importantly, e-business turns to be worthwhile if its deployment corresponds highly to the most crucial

aspects of firm operation (Bharati & Chaudhury, 2006). This clearly indicates the importance of aligning multifaceted e-business capabilities across various firm operations.

Having e-business capabilities aligned with the most crucial business functions would then optimize its values to the firm (Raymond & Bergeron, 2008).

The issue of IT/IS alignment (fit) has received considerable attention among researchers (Chan & Reich, 2007). Nevertheless, there are limited attempts to explore IT/IS alignment

amongst SMEs (Silvius et al, 2009). Additionally, earlier works mainly concentrate on IT/IS alignment in general, (Cragg et al, 2002) or alignment of specific business function (Ismail &

King, 2007; Hooper et al, 2010). Works are still limited in investigating the alignment on specific IT/IS, such as Internet-based solutions (Raymond & Bergeron, 2008). Hence,

this study has two major objectives;

- (i) to assess systematically the current state of e-business alignment among SMEs;

(ii) to distinguish firms into several meaningful categories based on their e-business alignment characteristics.

This paper contributes to the existing literature in several aspects. First, it investigates alignment issue from a specific type of IT/IS application. Internet as compared to other types

of IT/IS is unique, as it is an open standard system that enables global connectivity and it uses public network as a backbone infrastructure (Zhu & Kraemer, 2005).

Furthermore, Internet technology has both computing and communicating capabilities (Premkumar, 2003). Such unique capabilities promote efficiency for

inter-firm interaction,
transactions processing
and market expansion
initiative. Secondly, instead
of investigating IT/IS
alignment from strategic
perspective (Cragg et al,

2002; Chan et al, 2006), this study evaluates e-business alignment at business process level. As Melville and Ramirez (2008) emphasize, different business processes have

relatively inconsistent degree of complexity, therefore require different kinds of Internet support. Additionally, examining e-business alignment at process level would

facilitate firms to locate highly supported or least supported business operation (Cragg et al, 2007).

In order to achieve these objectives, the following section proceeds by exploring development of IT/IS and e-business from SMEs perspective and analyzing earlier works on

IT/IS alignment. Based upon the review, the research model for this paper is then presented at the end of the section.

Conceptual Framework

IT, E-business, and SMEs

SMEs are comparatively different from their larger counterparts in several

aspects. They have the least complicated structure, which make them easily adaptable to environmental changes (Raymond et al, 2005). In turn, the decision making process becomes

more centralized (Bharati & Chaudhury, 2006). With respect to risk, SMEs are encountering greater business risk than larger firms apart from facing higher rate of business

failure (DeLone, 1988). Due to limited access to information, SMEs also have to deal with greater business uncertainty in managing daily operation

of the firms (Aragon-Correa & Cordon-Pozo, 2005).

Size has been identified as one of the possible factors that influence firms use of IT/IS. Generally, larger

firms have greater capabilities to embrace IT/IS as compared to SMEs (Bharati & Chaudhury, 2006). This is particularly due to several factors. First, SMEs usually have no clear

strategy to facilitate effective IT/IS usage (Cragg & Zinatelli, 1995). Secondly, smaller firms have limited financial resources and competent employees to initiate or to manage firms'

IT/IS applications (Thong, 2001). Lack of internal IT experts subsequently puts more pressure on firms to rely upon external IT experts to facilitate IT/IS related projects

(Premkumar, 2003).
Thirdly, SMEs mainly embrace IT/IS to support operational functions without any strategic focus (Schubert & Leimstoll, 2007). Thus, they tend to

adopt lower-end applications that are inadequate to firms (Thong et al, 1996). Such practice obviously restricts firms from fully optimizing the

real value from IT/IS
deployment.

Since Internet booming,
more efforts have been
initiated to investigate the
Internet impacts on the

SMEs. This transformation deserves further investigation as the Internet technology has different impacts on SMEs than other types of IT/IS applications. Considering

these differing characteristics, a unique model is therefore needed to understand the roles of specific IT/IS innovation in SMEs (Levy & Powell, 2000). Based on the above

argument, it is essential to investigate the use of e-business application among SMEs.

Large portions of studies have tried to establish wide

range of drivers/barriers of e-business practices (Mohamad & Ismail, 2009; Parker & Castleman, 2007). There are also growing attempts to investigate e-business diffusion across

business functions (Bharati & Chaudhury, 2006; Alam et al, 2007) and the impacts of e-business on firm performance (Pflugheoft et al, 2003; Raymond & Bergeron, 2008).

Internet-based applications have been gradually diffused into many aspects of firm value chains (Porter, 2001). These value chains, comprising of physical components and

information processing components, demand for different degree of Internet technology support (Bharati & Chaudhury, 2006). Several works have clearly indicated that the

Internet does have different roles in supporting various firm functions. For example, Magal and Kosalge (2006) report that marketing, procurement, in-bound and out-bound

functions are to receive relatively higher Internet support than other functions. Meanwhile, firms in production sector heavily consider e-business to be used for primary

functions while service sectors perceive greater e-business capabilities in support/secondary functions.

Despite vast e-business potentials, not all firms perceive e-business as a strategic solution to them (Bharadwaj & Soni, 2007). Thus, it is not reasonable to assume that all firms would

extensively deploy the Internet to support all aspects of their business. In such situation, firms may consider applications that provide substantial impact on their business operation

or applications that are aligned with firm's objectives (Levy & Powell, 2003). Furthermore, SMEs would also have greater tendency to deploy e-business applications to

enhance their core business functions rather than other supporting activities (Bharati & Chaudhury, 2009). This clearly suggests the importance of aligning various e-business

capabilities to the most crucial aspects of the SMEs operation. Appropriate e-business alignment is getting more critical considering firms allocated

limited resources to invest in e-business.

Although many studies have investigated Internet diffusion across business processes, there are still

scarce studies on aligning
e-business
applications/solutions to
the most crucial functions
of a firm business
processes. This study
therefore bridges the gap

by assessing the current state of e-business alignment across differing complexity of business processes. The next section discusses the concept of fit

and its application in IT/IS domain.

Concept of Fit and E-business Alignment

Concept of fit as proposed by Burns and Stalker

(1961) anchors the main hypothesis of contingency theory. The theory surmises that (1) 'there is no best way to organize; and (2) any way of organizing is not effective'

(Galbraith, 1973, p.2). Most importantly, the theory contends that the fit between business structure and contingency factors leads to better firm performance

(Venkatraman, 1989). The concept of fit and contingency theory has initially received considerable attention in understanding

organizational behavior
(Donaldson, 2001).

Nevertheless, due to the
emerging role of IT/IS in
business operation, there
has been a growing concern

on how firms could maximize values from the IT/IS investment.

Therefore, extending the concept of fit, Henderson and Venkatraman (1993) propose a Strategic

Alignment Model (SAM) as a framework to understand fit/alignment from IT/IS perspective. The model conceptualizes alignment as a multidimensional construct with four major

domains; namely; business strategy, IT strategy, organizational infrastructure and IT infrastructure. SAM indicates alignment to take place either at strategic

level or at operational level
(Cragg et al, 2007).

Strategic alignment
involves synchronization
between firm's IT strategy
and business strategy.

Meanwhile, operational

level alignment primarily focuses on aligning IT infrastructure and processes with firm infrastructure and processes.

Chan et al (1997) are among the first to provide empirical evidences based on the SAM model and to confirm the moderating effect of strategic alignment to IS performance and firm

performance. Since then, other similar works follow suit (Bergeron et al, 2001; Chan et al, 2006).

Nevertheless, to date, studies mainly concentrate on strategic level alignment

(Chan et al, 2006; Sabherwal & Chan, 2001), while there are limited attempts to investigate operational level alignment (Cragg et al, 2007). This is a crucial considering the fact

that implementation of firms strategies requires an effective interaction of interrelated business activities (Tallon, 2007).

On another respect, most of the studies primarily investigate IT/IS alignment among large entities (Chan et al, 2006; Sabherwal & Chan, 2001). Meanwhile, works to understand

alignment in SMEs context
are relatively scarce.

Hussin et al (2002) are
among the earlier
researchers to investigate
IT/IS alignment within the
SMEs setting. They

reported that IT/IS alignment issue does matter and therefore deserves further investigation. Cragg et al (2002) further ascertained the positive relationship

between IT/IS alignment and firm performance. From an accounting information systems perspective, Ismail and King (2007; 2005) also reported the lack of fit

between accounting information requirements and accounting information systems capabilities among Malaysian SMEs. More recently, Cragg et al (2007) have found that IT/IS

seems to provide
inconsistent support across
various business functions.
Their work further
indicates the need to
investigate IT/IS alignment
at business process level.

Research Model

Fig. 1 illustrates the proposed research model for the present study. To address the research gap,

this study first explores relative importance of various business processes to firms (business process importance) and the extent to which e-business is deployed to support the

business processes (e-business capabilities). Most importantly, this paper further explores the fit between 'business process importance' and 'e-business capabilities' (e-business

alignment). As such, e-business alignment is a derived construct resulting from an interaction of the two other constructs. As the research model further depicts, the next attempt is

to figure out several profiles with distinct characteristics of e-business alignment.

The research framework is based upon Strategic

Alignment Model advocated by Henderson and Venkatraman (1993). As indicated earlier, the model refers to operational (process) alignment as the fit between firm

infrastructure and
processes with IT
infrastructure and
processes. Considering
specific IT/IS domain, this
paper therefore
investigates alignment

between 'business process importance' and 'e-business capabilities'. This conceptualization is consistent with Van de Ven and Drazin's (1985) contention on applicability

of fit/alignment concept
beyond structural
contingency perspective.
They noted that the concept
of fit applies as long as the
theory proposes that
performance is a function

of match, congruence,
intersection or union of two
or more variables.

Fig1. Research Model

**Please See Fig 1 in Full
PDF Version**

Methodology

Survey Design and Sample

Considering the varying definitions of SMEs, this study defines SMEs

according to the National SMEs Development Council (2005) guideline. The guideline specifies small firm to be with full time employees (FTEs) of between 5 and 50

(manufacturing-based) or between 5 and 20 (service-based). Meanwhile, a medium firm category encompasses firms with FTEs between 50 and 150 (manufacturing-based) or

between 20 and 50 (service-based). However, authors exclude micro firms (less than five FTEs) considering their limited e-business capabilities and the unique nature of their

operation (Schubert & Leimstoll, 2007). In addition, samples of the present study comprise of Malaysian SMEs that are having website, as it is somehow well-accepted

indicator for firms
practicing e-business
(Brand & Huizingh, 2008).

Data collection involves
distribution of a self-
administered questionnaire

to 1,600 firms selected from two company directories i.e. SME Corporation and Malaysia External Trade Development Corporation (MATRADE). The targeted

respondent is the owner/manager of the firm who is expected to have sufficient knowledge about the firm operation and the nature of e-business practices. Besides, getting

responses from those with direct responsibility for a firm IT-related matters could be difficult as most SMEs hardly have a formal IT/IS unit (Bharati & Chaudhury, 2009).

After about three months, 155 firms responded to the survey but only 140 responses (9% response rate) are usable for analysis. Due to the

relatively low response rate, a non-response bias test has been carried out using time-trend extrapolation approach (Armstrong and Overton, 1977). The samples were

divided into two groups based on the median response date. The Mann-Whitney U-test does not indicate any substantial differences between the groups with respect to

several demographic factors, i.e. nature of operation, size of firms and present Internet usage. This suggests that the presence of non-response bias is relatively minimal.

Concepts and Measures

Business Processes

To start with, business processes that are potentially supported by

the Internet have been compiled from extensive literature review. The activities included are generic in nature to represent firms in various business sectors.

Consequently, this study does not consider functions that are specific to certain sectors such as production-related tasks. Based upon several works, 39 activities are shortlisted (Lefebvre et

al, 2005; Magal & Kosalge, 2006; Wilson et al, 2008). These activities are initially classified into three categories: internal operation, procurement and sales-related (Levy et

al, 2005). Twenty-five (25) e-business academic experts and SMEs representatives have evaluated these items to ensure their validity, clarity and appropriateness. Based

on the feedback received, a final instrument retained 36 items with slight modification on the wordings. These refined items then formed a basis for assessing the 'business

process importance' and 'e-business capabilities' that correspond to each business process.

Following Cragg et al (2007) approach, this study

operationalizes 'business process importance' to be perceived as the strategic importance of each of the business processes.

Meanwhile, consistent with the study objective of

understanding e-business
deployment across firm
functions, authors
operationalize 'e-business
capabilities' as perceived
level of Internet-technology
support to the respective

business process. This approach relies heavily upon Chan et al (1997) work. Nevertheless, as Chan et al (1997) examined the alignment of IT capabilities with

Venkatraman's (1989) business strategy construct, this study assesses the alignment of 'e-business capabilities' against 'business process importance'. From e-

business environment perspective, the approach is also consistent with Raymond and Bergeron (2008), whom operationalize 'e-business capabilities' as the extent of

support that Internet technologies currently provide to each of the business functions identified.

Consistent with earlier works (Chan et al, 1997; Hussin et al, 2002; Ismail and King, 2007), this study employs a bi-variate alignment approach in order to capture

information about 'business process importance' and 'e-business capabilities'. Using this approach, a set of questions was designed to measure firm perception on relative strategic

importance of each of the 36 business processes. Meanwhile, authors posed another set of questions to assess the extent of Internet technology supports to the respective

business process. Thus, responses for two sets of questions were obtained with 72 questions in total (36 questions on 'business process importance' and the corresponding 36

questions on 'e-business capabilities').

With respect to measurement scale, a 'business process importance' construct is

measured using a five-point scale with '1' indicating 'not important at all' and '5' as 'highly important'.

Consistently, a five-point scale is also considered for measuring 'e-business

capabilities' with '1' representing 'not supported at all' and '5' indicating 'highly supported'. Ratings obtained for both constructs then form a

basis to determine e-business alignment.

E-business Alignment (Fit)

There have been constant debates on measuring fit as

it corresponds to different mathematical computation and analysis technique (Van de Ven & Drazin, 1985). Venkatraman (1989) suggested six (6) perspectives of fit:

moderation, mediation,
matching, co-variation,
profile deviation and
gestalt. Nevertheless,
moderation and matching
perspectives have been
widely considered in

previous works (Chan et al, 1997; Premkumar et al, 2005). Some other studies further noted that moderation approach seems to be more meaningful especially in

associating alignment to firm performance (Cragg et al, 2002; Ismail & King, 2005). The moderation approach measures fit as an interaction effect between two variables and

subsequently assesses its effect to firm performance. At the same time, moderation approach provides greater merit (by producing higher score) when high alignment

occurs at the most crucial functions rather than high alignment which takes place at least crucial functions (Hooper et al, 2010).

Chan et al (1997) however
caution of 'anti-synergy'
effect resulting from
moderation approach.

'Anti-synergy' refers to the
situation in which firms
with very different scores

of 'business process importance' and 'e-business capabilities' (indicating a different level of alignment) are assigned with the same e-business fit scores. In response, Hooper

et al (2010) refines the measurement approach by retaining the advantages of both matching and moderation approach while minimizing the 'anti-synergy' problem.

Consequently, this study employs the refined measurement approach to determine e-business fit score using the following formula, which assumes

values ranging from 0 (very low fit) to 20 (very high fit).

E-business fit score =

$$(4 - |x - y|) * ((x + y) / 2)$$

Where x refers to the rating of 'business process

importance' and y refers to rating of 'e-business capabilities' of a particular process.

Findings

Table 1 reports distribution of samples on several demographic factors. As the table indicates, manufacturing-

based firms dominate around 70 percent of the samples. Meanwhile, there is relatively equal representation between small and medium-sized firms. As for market

orientation, about two-thirds of the responding firms are involved in export activities, while the remaining firms merely serve domestic market. Lastly, the analysis further

shows that the responding firms have diverse e-business experience. About 10 percent merely use e-mail, while about 40 percent are presently at web presence stage and

prospecting stage.

Meanwhile, less than 15 percent the firms have reached higher e-business ladders (integration and transformation).

With respect to respondent position, more than 90 percent of the respondents are serving managerial positions. Specifically, almost 50 percent of the respondents are presently

holding top management positions in the firms (owner/CEO). With respect to working experience, about 58 percent of the respondents have been working with the firm for

more than five years. These facts lay greater weight on respondents' credibility. Finally, in terms of gender, male are more dominant than female respondents. To check for possible

response bias, a Mann-Whitney U-test was executed to assess responses consistency across selected firms demographic information and respondents' profiles.

The results clearly indicate minimal differences of responses on major research variables.

E-business Capabilities and Assessment of Alignment

Preliminary analysis
reveals that Internet
support is somewhat

extensive for information searching, communication and marketing-related tasks that is consistent with other similar studies in Malaysia (Alam et al, 2007; Hussin et al, 2008; Tan et

al, 2011). This is because these are among the functions that are easily transformed by the Internet (Koh & Nam, 2005). Meanwhile, transactional-related activities, such as

payment, order processing and documents exchanges are not widely available in most firms. This is due to such capabilities require more sophisticated and expensive IT infrastructure

(Tagliavini et al, 2001).
Thus, not many firms can afford integrating the Internet to support these processes. The result also suggests that Malaysian firms are now reaching a

prospecting stage. At the prospecting stage, despite the fact that internet usage relatively goes beyond e-mail usage or basic web presence, the uses of applications that transform

transactional-related activities are still limited (Cheong et al, 2009).

E-business fit score represents the extent of e-business alignment of a

particular business process.
Overall results show that
the levels of e-business
alignment are not
consistent across various
business functions.
Activities related to

information searching,
advertising and customer
service are relatively
having better alignment
than other activities. On the
other hand, results indicate
lower alignment for

activities such as payment-related activities, employees training and contract negotiation **(Appendix 1)**.

Table 1: Demographic Information of Responding Firms

**Please See Table1 in Full
PDF Version**

However, assessment of alignment on individual business process provides limited understanding of the situation taking in consideration that some business activities are

potentially related. Hence, computation of aggregate e-business fit score could be useful to facilitate further analysis. For this purpose, a Principal component analysis (PCA) was first

employed to reveal higher order dimensions that might represent both 'business process importance' and 'e-business capabilities'. The PCA is useful to unleash

meaningful structure from the sample data (Tabachnick & Fidell, 2007). Initial checks on both constructs provide strong support on factorability of the data.

This is based on Kaiser-Meyer-Olkin (KMO) values for both 'business process importance' and 'e-business capabilities' of 0.915 and 0.874 respectively. Similarly, the Bartlett tests

of sphericity values are also significant for both constructs.

A Varimax rotation procedure employed however did not produce

any meaningful structure for both constructs with several cross-loading items. Consistent with Hair et al (2010), this study therefore considers an oblique rotation procedure to

refine the PCA results for easier interpretation. The PCA results suggest a refined framework with 32 items in five dimensions. The components can be appropriately labelled as

‘sales and after sales’,
‘procurement-related’,
‘accounting and financial-
related’, ‘information
searching’ and ‘in-house
operation’ (finalized items
retained for each process

dimension is presented in **Appendix 2**).

E-business fit score for each process dimension is determined by obtaining the average fit scores of all

items representing the respective process dimension. **Table 2** presents mean product of 'business process importance', 'e-business capabilities' and 'e-business

fit score' across process dimensions. Overall, the results indicate the presence of e-business alignment/misalignment within the SMEs context. Specifically, firms perceive

the Internet to be closely aligned with information searching, sales-related functions and in-house operation. Meanwhile, lower alignments are noticeable for financial-

related and procurement functions. Consistent with earlier works (Cragg et al, 2007; Tallon, 2007), these results suggest diversity of e-business alignment across business functions.

As indicated further, firms have greater tendencies to integrate e-business applications to support most salient functions of their firms while substantially minimizing e-

business investment in least salient functions. The next section proceeds to classify the sample firms based on their e-business fit characteristics.

Table 2: Mean Scores by Business Process Dimensions

**Please See Table 2 in Full
PDF Version**

E-business Fit Profiles

Considering inconsistencies of e-business alignment patterns across business functions, it is interesting to further investigate for the

existence of any possible patterns with respect to e-business fit characteristics across firms. Hence, this study has considered cluster analysis due to its capability to classify objects

such as respondents, products or other entities based on given characteristics (Hair et al, 2010). The clustering procedure is executed using hierarchical

clustering approach (Ward method) with fit scores of all process dimensions as the clustering variables.

Meanwhile, an agglomeration coefficient change becomes a basis to

determine the most optimal cluster solution. Clustering result (**Table 3**) indicates a two-cluster solution could be appropriate to represent the samples based on the highest change in

coefficient value (48.6%).
However, in most cases the two-cluster solution always produces the highest coefficient change and thus might not adequately represent profiles of the

samples unless being supported by strong theoretical justification (Hair et al, 2010).

Consequently, the next solution with highest coefficient change could be

selected, i.e. three-cluster solution (22.9%). In other words, the cluster analysis suggests three distinct groups of firms with different e-business fit characteristics.

Table 3: Partial Extract of Cluster Analysis Output

**Please See Table 3 in Full
PDF Version**

Table 4 reports comparative fit scores among clusters. As presented in the table, slightly lower than 50 percent of the samples (62 firms), fit into the second

cluster while the first and the third clusters have 35 and 43 memberships respectively. For validation purpose, one-way ANOVA indicates significant mean differences across three

clusters with respect to all clustering variables. The post-hoc tests (not disclosed) also indicate significant differences between clusters. Both tests suggest that all three

clusters have relatively heterogeneous e-business fit characteristics. Thus, the clustering result is rather reliable and valid.

Table 4: Comparative Characteristics of E-business Fit by Clusters

**Please See Table 4 in Full
PDF Version**

Fig. 2 below further illustrates the comparison using graphical representation. The diagram denotes two important aspects of alignment characteristics

across clusters. First, a horizontal comparison indicates that e-business fit scores are relatively higher for information searching, in-house operation and sales-related functions.

Obviously, the pattern seems to be highly consistent across clusters. Secondly, a vertical comparison shows that firms in the first cluster have comparatively higher

fit scores in all business processes compared to other clusters. Meanwhile, firms in the third cluster report consistently low level of alignment for all aspects of operation. These

observations suggest that the most obvious differing characteristic amongst clusters is their overall e-business fit score (vertical comparison) instead of perceived alignment at

different business process dimensions (horizontal comparison). The cluster classification results are consistent with earlier studies of IT/IS alignment

(Ismail & King, 2007; Cragg et al, 2002).

**Fig2. Comparative
E-business Fit
Characteristics across
Clusters (Mean Score)**

**Please See Fig 2 in Full
PDF Version**

Fig. 3 further shows comparison of e-business fit characteristics based on mean-centered value (the differences between a cluster mean score and overall mean score). As the

figure indicates, the first cluster has greater than average fit scores for all aspects of processes. In contrast, fit scores for firms classified into the third cluster are substantially

lower than average
especially for sales and in-
house operation. Finally, fit
scores for the second
cluster are slightly above
overall mean scores except

for finance and information
searching functions.

**Fig3. Comparative
E-business Fit
Characteristics across
Clusters (Mean-Centered
Value)**

**Please see Fig 3 in Full
PDF Version**

The pattern revealed in **Fig. 2** and **Fig. 3** then would be a basis for naming the clusters. Based on the above analysis, it is appropriate to propose that the first cluster represents

firms with relatively higher e-business fit score in all business functions.

Therefore, the cluster could be labelled as 'highly fit'.

Meanwhile, as the second cluster comprises firms

with comparatively moderate fit score in almost all aspects, it is thus acceptable to label this group as 'moderately fit'. Finally, the third cluster comprises firms with

relatively lowest fit score
for all functions and
therefore suits the label of
'low fit'.

With respect to e-business
alignment characteristics,

firms in the 'highly fit' cluster perceive greater importance of e-business applications and those applications have been deployed to support the most crucial functions of

the firms. In other words, Internet capabilities of these firms are closely aligned to the most essential aspects of the firm functions. In contrast, although firms classified

under 'low fit' category do find several functions are crucial to their business, they perceive limited e-business potentials to enhance efficiency of those business functions. Thus, it

is presumed that firms hardly find strategic e-business values to facilitate their business operation. Finally, about two-thirds of the responding firms classified under

'moderately fit' category
are in the transformation
stage as they keep
exploring Internet
potentials to support their
business.

Discussion and Conclusions

E-business offers wide range of supports to extend firm's productivities.
Nevertheless, SMEs are

relatively more prudent concerning e-business-related investment due to resources constraint.

Hence, they would have to focus their investment particularly to enhance the

most crucial functions of the firms in order to manage e-business effectively. This paper, therefore explores current state of e-business alignment across various

business functions.

Preliminary analysis of 'business process importance' shows that firms perceive certain business functions as more important than other

functions. In terms of e-business capabilities, the degree of e-business support is relatively lower even for most crucial functions of the firms. This pattern suggests that there

are still wide opportunities for firms to improve their e-business capabilities.

Considering both aspects of 'business process importance' and 'e-business

capabilities', the next step was to investigate as to what extent that the e-business capabilities employed correspond to the most strategic functions of the firms. The results

show that higher alignment is more noticeable on sales, information searching and in-house functions.

Meanwhile, firms perceive relatively lower level of alignment with respect to

procurement and
accounting/financial
functions.

Cluster analysis further
proposes three profiles
with distinct e-business fit

characteristics. The clusters were named as 'highly fit', 'moderately fit' (transforming) and 'low fit' (limited potential). The results also reveal that majority of the firms reside

in the second cluster while relatively lower proportion of the firms that successfully reach higher level of alignment. This could be another justification for slow

progress of e-business deployment amongst SMEs. The result suggests that e-business does not equally fit all SMEs in the same manner. Although large proportion of the SMEs has

initiated e-business use, many do not progress further to more advanced stages. This is disappointing since remaining at an early stage of e-business ladder

restricts firms from
optimizing real values of e-
business (Magal et al,
2009).

These findings benefit e-
business and SMEs

researchers by providing another perspective of investigating e-business phenomenon. The study views the problem from a fit perspective and thus provides a different insight

with a view to have better understanding of e-business practices amongst SMEs. The outcome would also benefit SMEs-related agencies to customize their strategies in promoting e-

business to the SMEs. A more focused approach, i.e. by identifying and providing necessary support for most potential firms to progress in e-business, is more useful

than employing a blanket approach to all SMEs at large.

Readers should take into account several limitations in generalizing these

findings. First, the sample size is relatively small, though this is a commonplace for studies involving owner/manager of SMEs (Dennis, 2003). Having obtained larger

responses would enhance representation of the SMEs population at large.

Secondly, the survey has been conducted among SMEs in developing country. Further validation

can be useful by comparing the results with other developing or developed nations.

Future works could further ascertain any linkage between different

characteristics of fit and performance impact. In case there is a positive impact of e-business fit on performance, it could be a good sign for firms to put continuous effort in

aligning their e-business capabilities. In addition, future works could also investigate discriminating factors among firms with different fit profiles. This is obviously crucial to provide

reasons for why some firms
have better e-business
alignment than other firms.

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Appendices

Appendix 1: E-business Fit by Business Process Items

**Please See Appendix 1 in
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Appendix 2: Dimensions of Business Processes

**Please See Appendix 2 in
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