

Factors Influencing the Alignment of Accounting Information Systems in Small and Medium Sized Malaysian Manufacturing Firms

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Abstract

The concept of arrangement or fit between data innovation (IT) and commerce technique has been talked about for numerous a long time, and vital arrangement is considered pivotal in expanding firm execution. However few endeavors have been made to explore the variables that impact arrangement, particularly within the setting of little and medium measured firms (SMEs). This issue is critical since comes about from past considers propose that many firms battle to attain arrangement. Hence, this study sought to distinguish distinctive levels of arrangement and after that explored the components that impact arrangement. In specific, it centered on the arrangement between the prerequisites for bookkeeping data (AIS requirements) and the capacity of bookkeeping frameworks (AIS capacity) to produce the data, within the particular setting of fabricating SMEs in Malaysia. Employing a mail survey, information from 214 firms was collected on nineteen bookkeeping data characteristics for both prerequisites and capacity. The fit between these two sets was investigated utilizing the control approach and prove was picked up that AIS arrangement in a few firms was tall. Cluster investigation was utilized to discover two sets of bunches that may well be considered more adjusted and less aligned. The consider at that point examined a few components that can be related to a little firm's level of AIS arrangement.

Keywords

Financial Agglomeration, Industrial Structural Upgrade, Space Measurement, Space spillover effect.

1. INTRODUCTION

1.1. Background of the Study

Numerous thinks about have underscored the got to create a fit between commerce methodology and information innovation (IT) procedure. However numerous firms battle to realize arrangement and, to date, there have been generally few ponder of arrangement and in specific the components that impact the arrangement in little and medium measured firms (SMEs). Surveys of bookkeeping and data frameworks writing appear that numerous ponders have inspected the arrangement between possibility variables and bookkeeping data frameworks (AIS) plan (Chong & Chong 1997; Chenhall & Langfield-Smith 1998; Mia & Clarke 1999) or the arrangement between possibility components and IT advancement (Weill & Olson 1989; Henderson & Venkatraman 1993; Bergeron et al. 2001), especially among huge firms. Chang and Jevons Lee (1992) contended that impacts from these variables can be measured by the degree of a firm's data prerequisites, which agreeing to Bolon (1998) would be made accessible by firms contributing to a more modern data preparing framework. Be that as it may,

with the special cases of El Louadi (1998) and Rhee (2001), ponders that center on the arrangement between data prerequisites and data handling capacity are exceptionally uncommon, particularly within the setting of SMEs.

1.2. Problem Statement

This ponder endeavored to fill this crevice by looking at variables that impact AIS arrangement within the particular setting of Malaysian fabricating SMEs. This objective was accomplished by firstly clustering the SMEs agreeing to whether or not there was arrangement between bookkeeping data prerequisites (spoken to by AIS prerequisites) and bookkeeping data framework preparing capacity (spoken to by AIS capacity). The arrangement bunches were at that point tried against potential impact variables to decide their connections with AIS arrangement. This ponder centered on AIS arrangement since AIS (which covers both the budgetary and administrative angles of bookkeeping data) is an vital component of cutting edge data frameworks inside SMEs (Mitchell et al. 2000). This exploratory ponder moreover pointed to recognize productive areas of future investigate within the zones of bookkeeping and data frameworks.

Another segment surveys existing writing on AIS and data framework advancement in SMEs. It appears that there are or may be conflicting discoveries approximately AIS plan in SMEs and there are vague discoveries approximately the vital utilize of IT in SMEs, which legitimizes encourage examination into the fit of AIS prerequisites with AIS capacity. Another segment will clarify the improvement of the inquire about the show, including six speculations around six factors that are recognized as likely to be related to the arrangement and clarifies the chosen strategy for measuring arrangement. Within another area, points of interest of the test utilized are given. At that point cluster examination is utilized to recognize two arrangement bunches: those with AIS arrangement and those which are not-aligned. These two bunches are utilized to test the inquire about theories. Within the following segment the comes about are examined, the hypothetical and viable suggestions are depicted and the restrictions of the think about being recognized.

1.3. Research Model and Hypothesis Development

1.3.1 Research Objective

Figure 1 portrays the inquire about the show, where six factors are seen to be related to AIS Arrangement: IT advancement, owner/manager information, owner/manager commitment, outside mastery, inner skill, and firm estimate. The subordinate variable is AIS arrangement which is seen as the fit between AIS necessities and AIS capacity. The theories of this show and a defense of the estimation of each variable are displayed within the taking after discourse.

Concurring to Huber (1990, p.65), "... utilize of progressed IT leads to more accessible and more rapidly recovered data, counting outside data, inside data, and already experienced data, and hence leads to expanded data accessibility". Firms with broad assets may pick up a competitive edge by conveying IT in bolster of or to fortify their commerce (Lord et al. 1989). Chan et al. (1997) and Hussin et al. (2002) found that a fitting level of IT advancement was related with the capability to adjust IT procedure and commerce methodology. Consequently, it is anticipated that firms with more advanced It'll have a better degree of AIS arrangement (Theory 1).

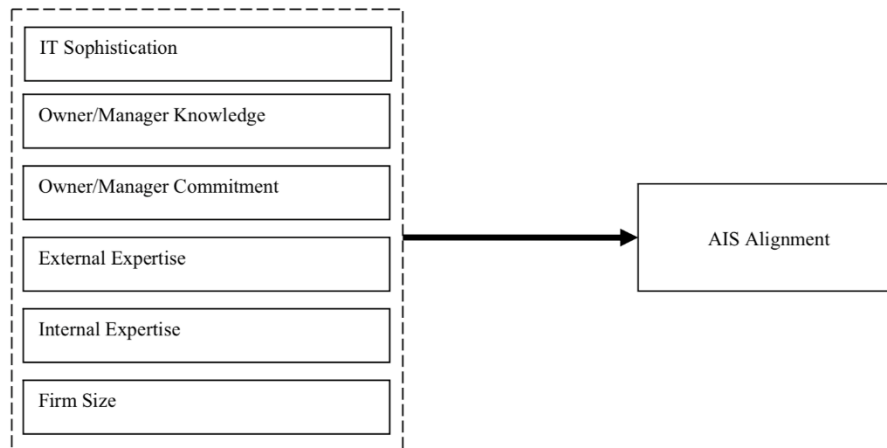


Figure 1: The research model

1.3.2 Research Questions

H1: Firms that have more sophisticated IT will have a higher degree of AIS alignment than those firms with less sophisticated IT.

Within the setting of SMEs, an owner/manager's IT information can decide the victory or disappointment of computerization ventures since they play an overwhelming part in an SME's trade choices (Seyal et al. 2000; Thong 1999; 2001; Hussin et al. 2002). Most regularly, the owner/manager of the firm is the as it were individual who completely gets it the goals and headings of the firm (Thong 1999). In this manner, owners/managers who are mindful of existing and modern innovations would be able to select the proper software for their firms (Hussin et al. 2002). Within the setting of AIS, owners/managers with both IT and bookkeeping information are in distant better; a much better; a higher; a stronger; an improved">a distant better position than those without this knowledge, because they can get it the firm's AIS prerequisites and after that utilize their IT information to decide the IT arrangement that matches the firm's data needs. Hence, it is anticipated that in associations wherein the owner/manager has adequate IT and bookkeeping information, there will be a better degree of AIS arrangement (Theory 2).

H2: Firms with owner/managers having tall levels of IT and bookkeeping information will have a better degree of AIS arrangement than those firms with owner/managers having moo levels of IT and bookkeeping knowledge.

In expansion to information, an owner/manager's commitment moreover plays a basic part within the viability of data framework usage in SMEs (Thong & Yap 1995; Igarria et al. 1997; Lertwongsatien & Wongpinunwatana 2003; Seyal & Abdul Rahman 2003). Due to their overwhelming parts, and owners/managers' commitment can bring IT into an arrangement with the firm's targets and procedures (Jarvenpaa & Ives 1991). Owner/manager commitment within the shape of support in computerization ventures would moreover energize clients to create positive states of mind towards the IT project and hence is more likely to result within the SME accomplishing arrangement. More critically, the owner/manager has the specialist to guarantee the adequate allotment of assets for the IT extend (de Guinea et al. 2005). Hence, it is expected that in associations where owner/manager commitment is predominant, there will be the next degree of AIS arrangement (Hypothesis 3).

H3: Firms with owner/managers having high levels of commitment will have a higher degree of AIS alignment than those firms with owner/managers having low levels of commitment.

Numerous analysts have highlighted the significance of merchants and experts to computerization ventures in SMEs (Igbaria et al. 1997; Thong 1999; 2001; de Guinea et al. 2005). In expansion, government help has moreover played a major part in quickening the appropriation of IT among SMEs, especially in creating economies (Yap & Thong 1997). Bookkeeping firms have to been seen as a potential source of counsel for SMEs on the utilize of bookkeeping and data frameworks (Davis 1997). These discoveries were affirmed by Breen and Sciulli (2002) and Hartcher (2003), who found that bookkeepers, the bookkeeping calling, industry affiliations and IT preparing experts have played critical parts in empowering SMEs to computerize their record-keeping forms. The help advertised by these specialists empowers SMEs to pick up a broader point of view of both their data needs and data handling capacity so that it is anticipated that SMEs locks in these outside specialists will accomplish higher degrees of AIS arrangement (Hypothesis 4).

H4: Firms that engage external expertise will have a higher degree of AIS alignment than those firms that do not engage external expertise.

SMEs moreover need experienced inner bookkeeping and IT specialists (see, for illustration, Peak & Raman 1992; Mitchell et al. 2000; Ravarini et al. 2002). This regularly comes about at a lower level of mindfulness and understanding of the significance of bookkeeping data conjointly the capability of IT to create the data. This, in turn, hinders SMEs from embracing vital bookkeeping data and advances. Consequently, the inquire about the show too incorporates inner ability as a calculate that might impact AIS arrangement in SMEs. The presence of bookkeeping staff may offer assistance SME owners/managers to get it the significance of bookkeeping data in checking their monetary execution, while IT staff may help them in recognizing the correct innovation to create the specified data.

1.3.3 AIS alignment

The concept of alignment or fit has been debated in the literature and a number of approaches have been developed to operationalise the concept. Venkatraman (1989) provided six different perspectives from which fit could be defined and studied. Different approaches require different mathematical models and have different theoretical implications (Bergeron et al. 2001). The moderation and matching approaches have been used by a number of researchers in both the accounting and information system literatures. Other approaches are still in their exploratory stages and thus require further development (Cragg et al. 2002). This study modelled fit using the moderation approach because of the weight of evidence in favour of this approach (see, for example, Chan et al. 1997; Cragg et al., 2002; Hussin et al. 2002). The moderation perspective assumes that alignment reflects synergy. Therefore, alignment is calculated as the interaction between two measures which, in this case, are AIS requirements and AIS capacity. For example, AIS capacity has a different impact on a high value for the AIS requirements compared with a low value. The greater the value of AIS capacity, the higher the effect of AIS requirements on performance (Ismail & King 2005).

AIS prerequisite and AIS capacity factors were measured in connection to nineteen bookkeeping data characteristics utilizing two partitioned five-point scales. To begin with, respondents were inquired to demonstrate their discernment of the significance to their commerce of each of the nineteen data characteristics (1 = not critical; 5 = exceptionally imperative). At that point, they were inquired to show the degree to which their computer-based frameworks back each of the nineteen data characteristics (1 = not accessible; 5 = broadly accessible).

1.3.4 IT sophistication

In the SME context, IT sophistication is recognised as a multi-dimensional variable, where different researchers measure the item differently. Raymond & Pare (1992) developed the most comprehensive measure of IT sophistication, which includes all aspects related to technological,

informational, functional, and managerial sophistication. They defined IT sophistication as "... a construct which refers to the nature, complexity and interdependence of IT usage and management in an organisation" (Raymond & Pare 1992, p.7). Technological sophistication reflects the number or diversity of IT used, while enlightening modernity is characterized by the nature of its application portfolio. Utilitarian modernity relates to the basic viewpoints of the data frameworks work and the usage handle, whereas administrative modernity alludes to the instruments utilized to arrange, control and assess show and future applications. This ponders received as it were two measurements of IT advancement (mechanical and educational advancement) to speak to IT advancement. Useful and administrative advancement is considered less pertinent since most SMEs don't have partitioned IT capacities and in this way need IT arranging and control (Thong 2001). In expansion, Hussin et al. (2002) inspected the effect of three measurements of IT advancement on IT arrangement. The consider found a noteworthy relationship between IT arrangement and mechanical modernity but not with useful and administrative modernity.

1.3.5 Owner/manager IT and accounting knowledge

This ponders measured owner/manager IT information employing a list of seven applications commonly found in SMEs. Employing a five-point scale (1 = no information; 5 = broad information), the respondents were inquired to show the degree to which they were recognizable with word handling, spreadsheet, database, bookkeeping, email, Web and computer-assisted generation administration applications. Utilizing the same scale, respondents were at that point inquired to show their information level relating to money related and administrative bookkeeping procedures.

1.3.6 Owner/manager commitment

Owners/manager commitment was measured based on the degree of their interest in IT ventures. This considers embraced a comparative instrument utilized by Hussin et al. (2002) to degree owner/manager interest in data framework execution. The instrument which was initially created by Jarvenpaa & Ives (1991) was tried and approved by Hussin et al. (2002) within the specific context of SMEs. Employing a five-point scale (1 = no cooperation; 5 = tall cooperation), respondents were asked to show their level of interest within the taking after five zones: definition of needs (data prerequisites), choice of equipment and computer program, execution of frameworks, frameworks upkeep, and issue understanding, and arranging for future IT sending.

1.3.7 Sources of advice (external and internal expertise)

Four primary sources of outside skill recognized from the writing were included within the survey: specialists, merchants, government offices, and bookkeeping firms. The survey inquired the respondents to recognize the sources of exhortation utilized by their firms. In expansion to outside skill, the survey too inquired respondents to show whether they utilized full-time bookkeeping and IT staff.

2. LITERATURE REVIEW

The concept of arrangement connected in this think about was created around Galbraith's (1973) data handling (IP) hypothesis. IP hypothesis, which is one of a few that can be classified as possibility hypothesis (Bolon 1998), hypothesizes that the IP capacity of an association must coordinate its data necessities if IP capacity is to have a critical effect on execution (Galbraith 1973). The hypothesis accepts that an association is "... a complex framework whose essential issue of relating to its environment is the procurement and use of information" (Bolon 1998, p.212) – the more prominent the instability, the more noteworthy the sum of data that has to be prepared to attain a given level of execution. Associations would in this way react to the expanding data request by expanding or decreasing their IP capacity (Galbraith 1973). Whereas

IP hypothesis was initially created in the setting of expansive and complex associations, a few thinks about have effectively connected this concept of fit within the setting of littler firms (see, for illustration, El Luoadi 1998; Ismail & Ruler 2005; Khazanchi 2005). This thinks about applies IP hypothesis to look at the fit or arrangement between AIS prerequisites and AIS capacity, and to identify factors that may well be related to an SME's level of AIS arrangement. This approach is additionally steady with Van de Ven & Drazin's (1985) proposal that a hierarchical result is the result of fit between two or more components. The taking after sections talks about extant writing relating to AIS and data framework improvement in SMEs.

Numerous considers have moreover been conducted to get it how IT has been utilized to back data necessities in SMEs (see, for illustration, El Louadi 1998; Temtime et al. 2003; Ismail & Ruler 2005). In common, it comes about from past thinks about the show that IT selection has developed colossally inside SMEs. However, there's impressive prove to propose that exceptionally few of the coming about frameworks have had any critical effect on the way administration makes choices (Temtime et al. 2003). More full (1996) contended that the key issue of the need of vital IT utilization in SMEs relates to the moderately destitute fit between what the program apparatuses are advertising and what is required, with not one or the other the clients nor the providers being in a solid position to communicate with each other. The circumstance is indeed more significant inside SMEs since they need to be experienced inside bookkeeping and IT ability and bolster (Mitchell et al. 2000). The ensuing need for mastery limits data understanding, IT determinations and choice arrangements, and it unavoidably leads SMEs to actualize or buy a data framework that's insufficient to the firms' needs (Ravarini et al. 2002).

In outline, IT victory has been inspected and examined within the SME setting and a few later ponders demonstrate that IT arrangement is critical for SMEs. Be that as it may, there are exceptionally few thinks about which have centered on issues encompassing the arrangement of data prerequisites and data framework handling capacity in SMEs, counting variables that may impact this arrangement. Thus, this considers pointed to supply encourage prove approximately this issue, with an accentuation on bookkeeping data, and the components related to an SME's level of AIS arrangement.

3. RESEARCH METHOD

The center of this ponder was on AIS arrangement in SMEs. This was advance limited to fabricating firms since the fabricating segment can give an extension of levels of IT modernity (Cragg et al. 2002). The Malaysian Little and Medium Businesses Improvement Organization (SMIDEC) characterizes SMEs in fabricating, manufacturing-related administrations and agro-based businesses as ventures with full-time workers not surpassing 150 or with yearly deals turnover not surpassing RM25 million. Be that as it may, SMEs in this consider were characterized as any unit with 20 and 150 workers. The number of workers is the foremost commonly used worldwide definition within the writing since in a few societies little firms are hesitant to reveal exact money related details. Very few firms (with less than 20 representatives) were moreover prohibited to extend the likelihood of inspecting computerized firms and firms that to a few degrees received vital bookkeeping data.

To realize this, a mail survey overview carried out from Eminent to October 2005 was utilized to accumulate information. The Alliance of Malaysian Producers database gives an add up to of 771 addresses of SMEs as characterized in this ponder. Fifty addresses were utilized for the pre-test and pilot test, and the remaining 721 were utilized for the most study. Taking after Dillman's (1978) recommendation, the survey was refined in three stages: pre-testing with scholastics and inquire about understudies, pre-testing with firm directors, and pilot testing with firm directors. The pre-test pointed to clarify the wording of both the survey enlightening and

questions, while the pilot test endeavored to look at designs of respondents' answers and in this way their understanding of the survey.

The surveys were tended to the Overseeing Executives (MD) of the firms. MDs were chosen to be the respondents of this ponder since they were more likely to have substantial discernments of the AIS plan and IT approach embraced by the firms. This is often since the MD commonly makes most key choices and is maybe the only individual who can saddle IT to realize the firm's targets and procedure (Jarvenpaa & Ives 1991). In expansion, the MD is ordinarily the owner/manager, and in this way, it is sensible to accept the current MD is the same MD who chosen on the plan of AIS and the IT approach of their firm (Thong 1999).

A add up to 230 firms, in the long run, reacted to the study after ten weeks and two follow-up updates, which were sent a week and three weeks after the starting letter. Be that as it may, as it were 214 firms replied both the AIS prerequisites and AIS capacity things and were in this way usable for consequent examinations, coming about in around a 29% reaction rate. Non-response was inspected utilizing time drift extrapolation (Lindner et al. 2001). The primary 30 respondents and final 30 were compared on nineteen AIS prerequisites and nineteen AIS capacity things. As it was one variable demonstrated essentially distinctive. This proposes that non-response was not a noteworthy calculate that seems predisposition or influence the conclusions around the factors being examined.

4. RESULTS

The most objective of this paper is to look at the variables that influence AIS alignment. To realize this, within the following area the arrangement between AIS prerequisites and AIS capacity will be decided utilizing the balanced approach. At that point, utilizing cluster examination, firms will be gathered agreeing to their degree of AIS arrangement. At long last, six impact variables will be inspected within the setting of the diverse arrangement bunches in arrange to test the theories displayed in area 3.

4.1. AIS Alignment

The control approach to measuring fit was at first investigated to degree the arrangement between AIS necessities and AIS capacity. For each firm and each data characteristic, the AIS arrangement was measured by increasing the rating of an AIS prerequisite thing with the rating of the comparing AIS capacity thing. In this case, a tall rating for an AIS necessity thing and a tall rating for the comparing AIS capacity thing would result in a tall arrangement score. On the other hand, a moo rating for an AIS necessity thing and a moo rating for the comparing AIS capacity thing would grant a moo arrangement score. Since each thing was measured employing a five-point scale, the person result of the increases would run over all the conceivable scores from 1 to 25 (see Chan et al. 1997 for a detailed explanation of the moderation approach). The AIS arrangement cruel for each data characteristic for the full test is detailed in Table 1, in plummeting arrange. The comes about to appear that the data characteristics with tall arrangement scores were: recurrence of detailing; outline reports-organization; outline reports-sections; sectional reports; the speed of detailing; and worldly reports. The data characteristics with moo arrangement scores were: outside data; what-if examination; non-economic data; and sub-unit interaction.

Information characteristics	AIS alignment	SD
Frequency of reporting	14.44	5.41
Summary reports-organisation	13.64	5.73
Summary reports-sections	13.53	5.64
Sectional reports	13.51	5.79
Speed of reporting	13.39	5.90
Temporal reports	13.30	5.46
Future events	12.51	5.89
Immediate reporting	11.77	5.66
Non-financial (production)	11.29	5.71
Automatic receipt	11.16	6.16
Decisional models	11.14	5.57
Organisational effect	10.38	5.64
Precise targets	9.97	5.55
Non-financial (market)	9.81	5.42
Effects of events on functions	9.18	5.23
Sub-unit interaction	8.83	4.92
Non-economic information	8.57	5.12
What-if analysis	8.52	5.04
External information	8.07	5.08

Table 1: Mean rating for AIS alignment items

4.2. Cluster Analysis

In arrange to test our speculations it was vital to decide on the off chance that there were bunches of firms with clear contrasts in their degree of arrangement. The cluster examination procedure is regularly utilized to deliver clusters or bunches of profoundly comparative substances based on a few indicated factors. In this case, cluster examination was utilized to distinguish comparable bunches based on the nineteen measures of AIS arrangement utilizing the balanced approach. This method has the advantage of distinguishing closeness without forcing a particular show. In specific, since this method parts the populace into bunches, it was generally simple to compare and differentiate the impact of the control approach. Estimation issues moreover energized examination by sorts of firms instead of utilizing relationship and relapse investigation (Hussin et al. 2002). Vitaly, a few measures were dichotomous or categorical. Moreover, it appeared conceivable that a few proportion factors seem to have non-linear connections with the arrangement. In this manner, there was more chance of a few connections being distinguished utilizing cluster investigation.

Information characteristics	Cluster 1 (98)	Cluster 2 (116)
Frequency of reporting	16.55	12.62
Summary reports-organisation	15.99	11.52
Summary reports-sections	16.34	10.97
Sectional reports	16.09	11.25
Speed of reporting	16.54	10.79
Temporal reports	15.42	11.38
Future events	16.32	9.19
Immediate reporting	14.96	8.97
Non-financial (production)	13.85	9.13
Automatic receipt	13.94	8.66
Decisional models	14.36	8.28
Organisational effect	13.70	7.36
Precise targets	13.42	7.14
Non-financial (market)	13.59	6.67
Effects of events on functions	12.77	6.29
Sub-unit interaction	11.93	6.26
Non-economic information	11.82	5.78
What-if analysis	11.95	5.59
External information	10.97	5.71

Table 2: Mean alignment scores for the two-cluster solution

This think about utilized the cluster investigation schedule in SPSS for Windows (discharge 11). Ward's progressive clustering schedule was utilized at first and then remove between objects was measured utilizing squared Euclidean remove. The dendrogram and the alter within Ward's coefficient recommended that a two-cluster arrangement was fitting. The steadiness of the cluster arrangement was tried by part of the information into parts. Each half was at that point dissected independently and 81.1% of the cases were classified consistently, indicating consistency with the complete information set. The K-means approach to clustering was embraced to test for replicability of the cluster arrangement (Green et al. 1988) and 85.3% of the cases were reliable with Ward's strategy. This proposed that a steady and substantial arrangement had been found. The comes about have appeared in Table 2.

4.3. Hypothesis Testing of Variables Influencing AIS Alignment

Having recognized two bunches of firms with distinctive levels of AIS arrangement, it was at that point conceivable to test the factors that were set in segment 3 to be related with AIS arrangement: IT advancement; owner/manager information; owner/manager commitment; outside mastery; inner mastery; and firm measure. To test the speculations, the adjusted and not-aligned bunches of firms were compared for each variable.

4.3.1 IT sophistication and AIS alignment

Table 3 summarises the technological sophistication of the aligned and not-aligned groups by showing the percentage of each group that reported using each of the nine specific technologies. The number of innovations utilized in each firm was totaled, and after that found the middle value of over each bunch so that an independent-sample t-test can be performed on the difference of implies. This was found to be not critical, as shown within the last column. This comes about to suggest that the two arrangement bunches don't contrast in terms of the number of advances received. The particular innovations were at that point each tried employing a basic Chi-square test on the frequencies of use detailed for that particular innovation. As it was one innovation, outside arrange, varies significantly at the 95% level. The comes about to appear that the firms within the adjusted gather have more get to (63%) to outside systems than firms within the not-aligned gather (51%). The result proposes that utilize of the Web may offer assistance to the firms assembled more outside data and hence contribute to the AIS arrangement handle.

Technological sophistication	Aligned (125)	Not-aligned (149)	Sig.
Technology (% of group indicating use):			
Office support system	83	82	.515
Decision support system	67	71	.352
Database system	54	64	.097
Accounting application	98	92	.054
Computer-assisted production management	43	38	.277
Computer-aided design	27	33	.305
Computer-aided manufacturing	16	14	.371
Local area network	65	71	.243
External network	63	51	.046*
Number of technologies used (average over group)	5.18	5.15	.889

* Significance level 0.05

Table 3: Alignment groups and technological sophistication

In terms of mechanical advancement, the comes about in Table 3 appear that more than 80% of the firms in both bunches embraced office back frameworks such as word-processing and an introduction computer program, whereas over two-thirds of the firms embraced a choice bolster framework such as a spreadsheet. These discoveries are not astounding since these two innovations frequently come in one standard bundle such as Microsoft Office and Lotus Notes. Nearby region systems were moreover embraced by two-thirds of the firms in both bunches.

This recommends that, for firms in this test, this innovation is getting to be more basic for inside communications. Be that as it may, more advanced and costly computer programs, such as computer-aided plan, computer-aided fabricating and computer-assisted generation administration, are not broadly utilized by either bunch of firms.

The specific applications were then each tested using a simple Chi-square test on the frequencies of use reported for that specific application. Five applications (which can be categorized as analytical-based applications) varied essentially at the 95% level: money related investigation; venture administration; budget fluctuations; demonstrating; and staff administration. This infers that the two bunches of firms are well isolated based on these five applications. In spite of the moo rate of firms in both bunches utilizing these applications, the comes about in Table 4 demonstrate that the rate of firms within the adjusted bunch receiving these applications is higher than those within the not-aligned bunch. Other immaterial applications are for the most part transactional-based such as common record, accounts receivable and payable, charging and arrange passage, and obtaining and stock. The comes about to recommend that the adoption of analytical-based applications is vital for SMEs to attain way better arrangements for the test firms.

Informational sophistication	Aligned (98)	Not-aligned (116)	Sig.
Applications (% of group indicating use):			
General ledger	94	86	.051
Accounts receivable	96	90	.068
Accounts payable	94	92	.424
Billing	79	69	.076
Order entry	62	61	.495
Purchasing	58	58	.532
Inventory	74	64	.085
Production planning	25	21	.308
Payroll	80	76	.314
Cost accounting	41	34	.208
Financial accounting	59	59	.538
Financial analysis	45	26	.003*
Budgeting	36	25	.060
Project management	18	7	.009*
Production variances	16	10	.138
Budget variances	24	10	.005*
Modeling	8	0	.002*
Personnel management	38	23	.016*
Number of applications used (average over group)	9.45	8.11	.006*

* Significance level 0.05

Table 4: Alignment groups and informational sophistication

4.3.2 Owner/manager knowledge and AIS alignment

It is curiously to note from the comes about in Table 5 that owners/managers within the test SMEs accept they have great information of mail and Web. In truth, their information about the mail and the Web is generally higher than other IT applications. An independent-samples t-test was at that point utilized to look at the relationship between arrangement bunches and information factors. The comes about to appear that as it were the owner/manager's information of more advanced computer programs such as accounting-based and computer-assisted generation administration contributes to the AIS arrangement. Other applications did not contrast between the two arrangement bunches. One conceivable reason is that most businesses, counting SMEs, are anticipated to have information in common applications such as word handling and spreadsheets. The utilize of e-mail and the Web is additionally getting to be more of a trade need for all sorts and sizes of firms counting SMEs.

Owner/Manager knowledge	Aligned (125)	Not-aligned (149)	Sig.
IT knowledge (average over group):			
Word processing	2.90	2.77	.142
Spreadsheet	2.84	2.74	.302
Database	2.45	2.26	.051
Accounting applications	2.80	2.54	.011*
Computer-assisted production management	2.24	1.77	.000*
E-mail	3.06	3.04	.808
Internet	3.08	2.98	.207
Accounting Knowledge (average over group):			
Financial accounting	2.84	2.54	.001*
Management accounting	2.74	2.49	.006*

* Significance level 0.05

Table 5: Alignment groups and owner/manager knowledge

It can be seen in Table 5 that the two arrangement bunches vary essentially in terms of owner/manager bookkeeping information. The distinction is critical at the 95% level. This comes about to propose an affiliation between the degree of AIS arrangement and owner/manager information of monetary and administrative bookkeeping strategies. A closer examination of the comes about moreover uncovers a few exceptionally curious designs. It is watched that the bunch implies of owners/managers that are learned in IT and bookkeeping for the adjusted gather is higher than that of the not-aligned gather.

4.3.3 Owner/manager commitment and AIS alignment

The comes about in Table 6 appear that the level of owners/managers' support in data framework usage is moderately tall in both arrangement bunches. Be that as it may, the comes about of an independent-samples t-test appear exceptionally small bolster for the affiliation between AIS arrangement and owner/manager support. The two arrangement bunches as it contrasted essentially on one of five stages, which is the 'solving problems' arrange. Whereas the comes about don't back discoveries from past ponders (Thong & Yap 1995; Thong et al. 1996), the moderately tall support level of owners/managers in both bunches proposes IT development among the firms.

Owner/manager commitment	Aligned (125)	Not-aligned (149)	Sig.
Type of participation (average over group):			
Information requirements	3.12	3.34	.211
Choice of hardware and software	2.97	3.16	.261
System implementation	3.19	3.09	.533
Solving problems	3.37	2.97	.004*
Future plans	3.39	3.27	.387

* Significance level 0.05

Table 6: Alignment groups and owner/manager commitment

4.3.4 Firm size and AIS alignment

Taking after the common definition utilized to characterize SMEs, this ponders utilized the number of workers as a surrogate degree for the firm measure. An autonomous test t-test was carried out to look at the impact of the firm measure on the AIS arrangement. Shockingly, while the result demonstrates a noteworthy distinction ($F = 7.195$; $df = 212$; $p = 0.05$) between the cruel of representatives of these two bunches, the normal number of workers for the adjusted gather (64) is lower than the normal number of representatives for the not-aligned bunch (79). In any case, this startling finding is reliable with Morikawa (2004) who found that the

relationship between IT and firm execution is emphatically critical as it were for little firms but not medium measured firms.

5. DISCUSSION

This paper investigated the arrangement between AIS prerequisites and AIS capacity and the components that impact the arrangement. Comes about of the balanced approach to degree fit shown changing degrees of arrangement over the nineteen bookkeeping data characteristics. Utilizing cluster examination, two essentially diverse AIS arrangement bunches were distinguished which were named as adjusted and not-aligned. The comes about of this ponder recommend that a few Malaysian SME producers had accomplished arrangement between AIS prerequisites and AIS capacity, whereas others had not. At last, the two arrangement bunches were tried against six potential impact components: IT advancement; owner/manager information; owner/manager commitment; outside skill; inside skill; and firm estimate.

This study found some support for Hypothesis 1, which proposed an association between AIS alignment and aspects of both technological sophistication and informational sophistication. The comes about appeared bolster for the affiliation between educational advancement and AIS arrangement but not between mechanical advancement and AIS arrangement. The prove proposes that educational modernity (which relates to the number and sorts of applications portfolio received) is more vital than innovative modernity (which relates to the number and differences of advances utilized) for SMEs to realize the AIS arrangement. The critical contrasts between the two arrangement bunches relating to the selection of outside arrange and analytical-based applications (such as money related investigation, extend administration, generation changes, displaying and staff administration) too given prove that the adjusted firms have more noteworthy IT development. Vitaly, this development underpins Fuller's (1996) contention that SMEs experience hierarchical learning related to the use of IT.

This comes about moreover given a few bolsters for Theory 2, which proposed a relationship between owner/manager IT and bookkeeping information with AIS arrangement. Owner/manager information of bookkeeping was found to be altogether more noteworthy within the adjusted firms than less adjusted firms. The prove recommends that information of both financial and managerial bookkeeping may well be critical for the AIS arrangement. Be that as it may, the bolster for theory 2 was restricted since the information of as it were two of seven applications was altogether higher within the adjusted firms. Since the two applications (accounting-based and computer-assisted generation administration) are more sophisticated than the other applications explored, this proves proposes that owner/manager information of modern applications might be exceptionally vital for SMEs to attain AIS arrangement.

There was, however, very little support for Hypothesis 3, which proposed a relationship between owner/manager commitment and AIS alignment. Commitment was measured based on the level of the owner/manager's participation in IT projects. Only participation in the problem solving stage was found to be significantly greater in the aligned firms than the not-aligned group. This rather unexpected result could be explained by Jarvenpaa & Ives' (1991, p.206) who found 'executive involvement' (or the degree of importance placed on IT by the managers) was more important than 'executive participation' (or managers substantive interventions). Therefore, as argued by Hussin et al. (2002), possessing good knowledge of accounting and IT could fit into this concept of 'involvement' because this knowledge would help an owner/manager (probably with the help of external experts) to decide on the right software to support information needs and thus make alignment more likely.

This study also found some support for Hypothesis 4, which postulated a relationship between external expertise and AIS alignment. While the percentage of firms in the aligned group that seek advice from government agencies and accounting firms is significantly greater

than for those in the not-aligned group, the two alignment groups did not differ significantly when it comes to consultant and vendor expertise. The evidence suggests that gaining expert advice and assistance from relevant government agencies and accounting firms can help SMEs achieve better alignment. This rather unexpected finding could be a reflection of the aligned firms having greater IT maturity and thus seeking less expensive and more convenient advice. The element of trust could also be very important in the context of SMEs. Davis (1997), for example, argued that SMEs rely on accounting firms as their most trusted business advisors. The possible explanation is that accounting firms are more knowledgeable about their clients and their clients' businesses and thus can help them achieve better AIS alignment.

5.1. Implications for Theory

There has been much debate about the best way to measure alignment and, in particular, the alignment or fit of business strategy with IT strategy. Since Venkatraman (1989) discussed the concept of fit, part of the debate has focussed on which approach is best suited to particular types of alignment or fit. Bergeron et al. (2001) stressed that the appropriate measure of fit depends on the particular circumstances under consideration. Chan et al. (1997) and Cragg et al. (2002) considered both the matching and moderation approaches, but favoured the moderation approach. Hussin et al. (2002) and Ismail & King (2005) considered only the moderation approach and found it very useful. Following these studies, this study also used the moderation approach to measure the alignment between AIS requirement and AIS capacity, and found it useful for identifying aligned and not-aligned. Other studies will be needed to explore whether the moderation approach works well in similar situations and whether it might also be effective for other areas of study where fit or alignment is considered.

5.2. Implications for Practice

This study suggests that AIS alignment varies considerably, that it can be achieved by SMEs and that alignment is related to IT maturity, owner/manager knowledge, and sources of advice. The study indicates that some SMEs have built their technical capability over the years to meet their firm's needs. More importantly, the study suggests that there is no easy route to alignment. Merely engaging external IT expertise such as consultants and vendors does not guarantee success. Other sources of external expertise such as government agencies and accounting firms coupled with internal IT expertise seem to be more important than delegating all IT decisions to an external expert. Therefore, it is important for SMEs to learn from their use of IT so that opportunities can be recognised and priority given to initiatives that help IT support their information needs. This study found that owner/manager knowledge of accounting and sophisticated IT was associated with the ability to align AIS requirements with AIS capacity. This suggests that the owners/managers of SMEs need to be familiar with both financial and managerial accounting techniques to understand their accounting information requirements, while at the same time being aware of existing, new and advanced technologies to generate the required information.

5.3. Limitations and Future Research Opportunities

It is important to note that this study was exploratory in nature and thus subject to a number of limitations which can be addressed in future research.

The first limitation relates to the sample bias that might affect the generalisation of the findings. The sample was selected from a list of Malaysian manufacturing SMEs, and thus cannot be generalized to all SMEs. There are potential differences in the levels of IT sophistication and accounting information practices and thus AIS alignment among manufacturing SMEs and non-manufacturing SMEs, and between manufacturing SMEs in developing economies like Malaysia and manufacturing SMEs in developed economies. For example, manufacturing SMEs in

developed countries may have greater access to accounting and information systems benefits and services offered by relevant agencies when compared to those in developing countries.

The second limitation of this study relates to the definition of the SME itself. While it is generally accepted that the number of employees could be used as a surrogate measure for firm size, expanding the definition to include the sales or revenue of the firms may produce different results.

The third limitation of this study relates to the possible limitation of the time trend extrapolation method. While the response rate of 29% is considered excellent in the context of SMEs and the results of time trend extrapolation also suggest that the respondents' characteristics are similar across the time that they choose to respond, this method also assumes that this trend carries forward to the non-respondents.

Fourthly, this study focused on the content aspect of AIS alignment. In other words, AIS alignment was considered by measuring how closely the AIS requirements content matched with AIS capacity. Although some influences on alignment were studied, the process of aligning AIS requirements with AIS capacity was not explored. Future research could investigate planning processes that link AIS capacity to AIS requirements.

Finally, the study was based on a survey. This approach has shortcomings because it captures a situation or an event at a specific point in time. Future research could employ qualitative approaches such as case studies or a longitudinal study to further understand the AIS alignment process.

6. CONCLUSIONS

This paper examined 4 hypotheses concerning the achievement of AIS alignment in the specific context of manufacturing SMEs in Malaysia. It has made an important contribution by providing an increased understanding of AIS alignment in SMEs, which has received little attention in the literature. Using a cluster analysis based on the moderation approach, it was possible to identify two groups of SMEs. One group of firms had achieved some success in aligning their AIS capacity with their AIS requirements as measured by the moderation approach, while AIS alignment was lower in the other group. It would appear that the moderation approach adopted was effective in distinguishing two groups with different AIS alignment characteristics. By systematically testing the 4 hypotheses against these two groups of firms, some associations between the 4 variables and AIS alignment were confirmed. The evidence suggests that the major factors that influenced AIS alignment among the sample firms were informational sophistication, owner/manager accounting knowledge, advice from relevant government agencies and accounting firms, and the existence of internal IT staff. Firm size measured by the number of employees, however, seemed to have the inverse relationship with AIS alignment, where aligned firms were smaller when compared to the not-aligned firms. This finding is rather surprising and indicates the need for further research into the processes associated with AIS alignment in SMEs.

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