Compatibility and Flexibility of Accounting Information Systems

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ABSTRACT

Today, information is the determinant of trading companies’ success and Accounting Information Systems (AISs) play a significant role in aiding organizations to absorb and sustain a strategic opportunity. This paper aims at examining the compatibility and flexibility of manufacturing firms’ AIS at Zanjan Province. Research method is of descriptive - survey type and data collecting tool is questionnaire. Manufacturing experts comprise the statistical population of the study. One-sample T-test is used to test the hypotheses and Kruskal-Wallis Test is applied to examine the uniformity of the views among firms of different sizes. To test the significance of the research variables, Friedman Test is applied. The results suggest that there is compatibility and inflexibility of AISs in response to future changes of the firms.

Keywords: Compatibility, Flexibility, Control, Accounting Information systems (AISs), Zanjan
timely manner, they would not be effective later or might have the least degree of effectiveness. Therefore, timely presenting of data is one of the major goals of any information system (Davis and Olson, 1985).

A compatible system works aligned with activities, employees and firm structure. For example, we can assume Trade Bank that has many branches. A compatible AIS adjusts the data with specific requirements of a firm unit, and considering this helps to avoid any waste of time in firms and duly obtain our favorable goals based on firm requirements (Charles et al, 1995).

Ramazani et al (2013) revealed that the main reason of nonconformity of modern costing systems is incompatibility of AISs with activities of production cycle.

Ghaemi et al (2012) concluded that there is a direct relationship between AIS appropriateness and firms’ performance.

Ramazani and Vali Moghaddam Zanjani (2012) that accounting software must be designed and assessed based on AIS features. They grasped a gap between current and ideal situation of accounting software in adapting to the activities of firms under study.

2.2 Flexibility

Flexibility is one of the major subjects in AIS (Genus and Dickson, 1995). Flexibility is the ability of the system to switch or shift from planned activity (Eardley et al, 1997). Evans (1991) defines flexibility as the ability against changes aligned with future organizational needs. Rezayian (2001) stated that an information system must be able to be integrated into the future and this can be covered by flexibility. One of the experts believes that when most of organizational items and system are interconnected in an environmental circuit, flexibility flows in the organization as a critical success factor (CSF) strategy (Evans, 1991). Eppink (1978) believes that flexibility is a strategic reaction along organization’s future needs.

Firms are growing and developing. They produce new products, disregard non-profitable activities and appeal to more profitable activities. Changes in firm units often lead to changes of accounting system. A flexible system can simultaneously adapt itself to firm units’ changes without substantial changes.

Ramazani and Vali Moghaddam Zanjani (2012) grasped a gap between current and ideal situation of accounting software in adapting to the future changes of firms under study.

2.3 Internal Control

Internal control is the plans and techniques of the trading unit for protecting the assets, providing precise and reliable information, enhancing efficiency of the operations, and encouraging the Employees to abide by regulations and managerial methods (Sajjadi, 2006). AIS is an important mechanism for effective managerial decisions and control in organizations (Jensen, 1983 & Zimmerman, 1995). Internal control is the information requirement of the organization for concentrated supervision of operations (Simons, 1987). Rushinek and Rushinek (1995) noted that designing software selection system is based on control and this kind of assessment was among their research goals. From control viewpoint, the suitability of data security is one of the main challenges of organizations (Abermehly et al, 2004). If functional controls are weak, AIS outputs will be managed wrongly and it may have negative impact on organization relationship with vendors, customers and other individuals beyond the organization. Generally, there are five types of internal controls in computerized system (Sajjadi and tabatabai, 2006):

1. Control of primitive data
2. Control methods of input data validity into system
3. Controls of entering direct data into system
4. Controls of file keeping and data processing, and
5. Control of system outputs

3. RESEARCH OBJECTIVES

1. Examining the compatibility level of AISs with activities of firms under study.
2. Examining the flexibility level of AISs against future changes of firms under study.
3. Examining the appropriateness of AIS internal control in firms under study.

4. RESEARCH HYPOTHESES

1. AISs are compatible with current activities of firms.
2. AISs and their tools are flexible enough against future activities of firms.
3. AISs are appropriate control programs.

5. RESEARCH METHODOLOGY

To reach research goals in this study, a questionnaire with five-point Likert Scale (very low to very high) was addressed at and distributed to 130 fiscal, production, sales and logistics managers of manufacturing firms of medium and large and mega sizes, of which 106 were submitted. These questionnaires are used by the researcher as the base of conclusion. To analyze the collected data, Descriptive and Inferential Statistics have been applied. In Descriptive part, human resources of the firms were selected. In Inferential part, T-test was chosen to test the impacts of the variables. Kruskal-Wallis Test was used to measure the equality of the significance of variables and also to test the impact of firm size on independent variables of the research.
6. RESULTS

The analysis is reported in three sections: description of analysis, participants, and results of analysis.

6.1 Description of Analysis

We use t-tests to test our research questions and hypotheses. Since the data of the current study was not normally distributed and since responses were recorded on 5 point Likert scales, we use the Kruskal-Wallis one-way analysis of variance by ranks test (Siegel and Castellan 1998). This test was deemed to be appropriate for testing whether or not the mean responses are significantly different at the 5% confidence level.

6.2 Participants

One 106 business professionals (with 1-20 years of business experience) participated in the study. Table 1 provides demographic information of the participants. The demographic information indicates that the respondents were qualified to provide the information requested in the questionnaire.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
<th>Explanaion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>100</td>
<td>94.3</td>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Age Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 to 30</td>
<td>27</td>
<td>25.5</td>
<td></td>
</tr>
<tr>
<td>31 to 40</td>
<td>50</td>
<td>47.2</td>
<td></td>
</tr>
<tr>
<td>41 to 50</td>
<td>29</td>
<td>27.4</td>
<td></td>
</tr>
<tr>
<td>6 to 10</td>
<td>42</td>
<td>39.6</td>
<td></td>
</tr>
<tr>
<td>11 to 15</td>
<td>22</td>
<td>20.8</td>
<td></td>
</tr>
<tr>
<td>16 to 20</td>
<td>24</td>
<td>22.6</td>
<td></td>
</tr>
<tr>
<td>More than 20</td>
<td>18</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>58</td>
<td>54.7</td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td>23</td>
<td>21.6</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>25</td>
<td>23.7</td>
<td></td>
</tr>
<tr>
<td>Associate Diploma</td>
<td>38</td>
<td>35.5</td>
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<tr>
<td>Bachelor Degree</td>
<td>50</td>
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<tr>
<td>Mater Degree</td>
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<td>17</td>
<td></td>
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<tr>
<td>10 to 50</td>
<td>67</td>
<td>63.2</td>
<td></td>
</tr>
<tr>
<td>50 to 150</td>
<td>12</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>Up to 150</td>
<td>27</td>
<td>25.5</td>
<td></td>
</tr>
</tbody>
</table>

6.3 Results of analysis

Test of Hypotheses

To test all hypotheses, the following Claim and Reject hypotheses have been offered:

Claim: \( H_0: \mu > 3 \)

Reject: \( H_1: \mu \leq 3 \)

Test of hypothesis 1:

According to value of statistic \( T \) (6.818), degree of freedom (105) and \( \text{Sig} = 0.00 \), less than 0.05 of \( H_0 \) is accepted and \( H_1 \) is rejected at error level of 0.05 (Table 2). Therefore, we can state that AIS is compatible with firm activities at a reasonable degree.

Test of hypothesis 2:

According to value of statistic \( T \) (1.121), degree of freedom (105) and \( \text{Sig} = 0.257 \), more than 0.05 of \( H_0 \) is rejected and \( H_1 \) is accepted at error level of 0.05 (Table 2). Therefore, we can state that AIS and its tools do not have enough flexibility against future changes of the manufacturing firms.
Test of hypothesis 3:  
According to value of statistic $T$ (1.324), degree of freedom (105) and $\text{Sig}=0.188$, more than 0.05 of $H_0$ is rejected and $H_1$ is accepted at error level of 0.05 (Table 2). Therefore, we can state that AISs do not have appropriate control programs.

6.4 Firm Size and Independent Variables  
To examine the impact of firm size on independent variables (compatibility, flexibility and control), Kruskal-Wallis test has been applied. Table 3 presents the number and ranking average of each independent variable divided by firm size.

Table 4 shows the results of Kruskal-Wallis test.  
It can be concluded from Table 4 values that significance of variables flexibility is equal based on medium, large and mega size, but degree of compatibility and control different.

6.5 Equality Testing of Independent Variables  
In order to prioritize and determine the significance level of each independent variable, Friedman Test has been applied. This test states that either among preventing factors, one factor is more significant of the rest or all are of the same significance. To test this, the researcher has used the following claim or reject hypotheses:

$H_0$: Independent variables are of the same significance of impact.

$H_1$: Independent variables are not of the same significance of impact.

According to Table 5, $P\text{-Value}=0.006$, $df=2$ and Chi-Square=10.309. It can be concluded that $H_0$ is accepted and $H_1$ is rejected at error level of 0.05. This means that independent variables are not of the same degree of impact. Priority order of independent variables are offered in Table 6.

### Table 2: Main Analysis

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Test Value = 3</th>
<th>$t$</th>
<th>Mean</th>
<th>$df$</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 (Compatibility)</td>
<td>6.818</td>
<td>3.3950</td>
<td>105</td>
<td>0.000</td>
<td>0.89505</td>
<td>Accept</td>
<td></td>
</tr>
<tr>
<td>H2 (Flexibility)</td>
<td>1.141</td>
<td>2.6388</td>
<td>105</td>
<td>0.257</td>
<td>0.13881</td>
<td>Reject</td>
<td></td>
</tr>
<tr>
<td>H3 (Control)</td>
<td>1.324</td>
<td>2.6533</td>
<td>105</td>
<td>0.188</td>
<td>0.15330</td>
<td>Reject</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Firm Size</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatibility</td>
<td>10 to 50</td>
<td>67</td>
<td>49.92</td>
</tr>
<tr>
<td></td>
<td>50 to 150</td>
<td>12</td>
<td>77.38</td>
</tr>
<tr>
<td></td>
<td>Up to 150</td>
<td>27</td>
<td>51.78</td>
</tr>
<tr>
<td>Flexibility</td>
<td>10 to 50</td>
<td>67</td>
<td>54.51</td>
</tr>
<tr>
<td></td>
<td>50 to 150</td>
<td>12</td>
<td>39.25</td>
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<tr>
<td></td>
<td>Up to 150</td>
<td>27</td>
<td>57.33</td>
</tr>
<tr>
<td>Control</td>
<td>10 to 50</td>
<td>67</td>
<td>62.25</td>
</tr>
<tr>
<td></td>
<td>50 to 150</td>
<td>12</td>
<td>32.75</td>
</tr>
<tr>
<td></td>
<td>Up to 150</td>
<td>27</td>
<td>41.00</td>
</tr>
</tbody>
</table>

### Table 4: Result of Kruskal-Wallis Test Result

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Compatibility</th>
<th>Flexibility</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square</td>
<td>8.760</td>
<td>3.245</td>
<td>16.290</td>
</tr>
<tr>
<td>Df</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.013</td>
<td>0.197</td>
<td>0.000</td>
</tr>
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</table>

### Table 5: Friedman Test Statistics

<table>
<thead>
<tr>
<th>N</th>
<th>106</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>10.309</td>
</tr>
<tr>
<td>Df</td>
<td>2</td>
</tr>
<tr>
<td>P-value</td>
<td>0.006</td>
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</table>
Table 6: Mean Ranking of Variable

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Descriptive</th>
<th>Compatibility</th>
<th>Flexibility</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>Mean Rank</td>
<td></td>
<td>2.23</td>
<td>1.90</td>
<td>1.87</td>
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</tbody>
</table>

7. FINDINGS OF THE RESEARCH

The results yield the existence of compatibility between AISs and activities of manufacturing firms, as Ghaemi et al (2012) proved a positive relationship between AIS appropriateness for firm functions. Although Ramazani et al (2013) study showed an incompatibility between AISs and activities of production cycle. We can just reach an accurate and efficient evaluation if we examine the subject of AIS compatibility in different departments of a firm, like the study of Ramazani et al in production cycle activities.

In flexibility and control programs domain, lack of enough flexibility of AISs and their tools against future changes of under-study firm and weakness of the plans refer to control and security. Kruskal-Wallis Test results presented a significant Flexibility, that show the equality of the views among firms of different sizes but in compatibility and control variable there is no significant difference. Friedman Test results proved the inequality of the significance of the three variables among which flexibility was of the highest significance to the manufacturing firms.

REFERENCES

