Organisation Support of Intranet Use in Management Accounting Systems of Hong Kong Public Hospitals

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Abstract

Intranet is widely used for internal access, analysis and exchange of organisation accounting and control information. As a tool of information communication, intranet use affects the information characteristics of content presentation in Management Accounting Systems. Management Accounting Systems incorporate the structure, processes, tools, and techniques for the provision of information to aid the management in management control and decision-making (Horngren, 1982; Anthony & Govindarajan, 2001).

DeLone and McLean (1992) synthesize an Information Systems success model that comprises six dimensions as user information satisfaction, information quality, system quality, system usage, individual impact and organisational impact, and information quality has much relationship with Management Accounting Systems. Chenhall and Morris (1986) have specified the information quality dimensions of Management Accounting Systems. With reference to the information quality dimensions, this research is to investigate how organization support affects intranet use in supporting Management Accounting Systems of Hong Kong public hospitals.

All the forty public hospitals use intranet facilities supported by the Hospital Authority of Hong Kong. Nine large hospitals have even developed own hospital intranets. Case study interviews and questionnaire survey have been conducted to the executives of hospital financial services departments and administrative services departments who utilise intranet applications to exercise management and control. Results discover that Information Quality of Management Accounting Systems (MAS) mediates the relationship between top management support and intranet user information satisfaction.

Results of this research contribute knowledge to the uses of intranet for management accounting and control in public hospitals. In practice, efficient utilisation of limited government funding to public hospitals is now much concerned by the public of Hong Kong. This study is worthwhile for identifying how and to what extent intranet and Web-enabled applications support management accounting and control of public funded organizations as hospitals.

Keywords
Management Accounting Systems, MAS, intranet, Hong Kong public hospitals
Introduction

A critical question currently facing hospital management in Hong Kong is 'how to utilise limited government resources to suite the increasing public demand' (Ho, 2000). It is critical because the inland revenue of Hong Kong Government significantly decreases during 1998 to 2003 as the world economy ebbs. Health service is the third largest function spending government expenditure, and the health service expenditure keeps on increasing so as to match with the health care demand of the aging population.

The main bulk of public expenditure on health service, financed through general tax revenues, is channelled through a statutory body, the Hospital Authority (HA). In recent years, it has always been concerned whether technology helps to improve the situation through efficacious and efficient management and control of health service. HA has planned to build up a health information infrastructure to network all healthcare providers, to support the building up of electronic health record for citizens, and to provide the public with an electronic gateway to health knowledge.

For hospital management, HA has developed over twenty-six information technology systems and applications for uses by clinical and administrative/financial services departments of public hospitals (Hospital Authority, 2001). Five of them work on intranet for uses by hospital administrative services and/or financial services departments. They are Annual Plan System, Dietetics and Catering Management System, Executive Information System, HA Intranet, and Pharmaceutical Supplies System.

Intranet has been increasingly used as it is flexible and is not restricted by operating platform. It is a bounded internal information system using Internet technology and communication protocols within a private corporate information network. Intranet facilitates communication, distributes information, and allows project coordination within the same organisation (McChesney III, 2000). Through these structures, intranet supports platform-independent information access and update, communication-intensive business functions, and interpersonal communications.

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Theoretical Aspects and Hypotheses Development

Intranet Use and Management Accounting Systems

Intranet applications provide management with a working set of comprehensive intra-organisational, inter-organisational, and global decision support systems (Korgan et al., 1997). These systems organise information horizontally across organisation departments, and vertically through drill-down reporting capabilities. Intranet applications enhance the information aspects of Management Accounting Systems.

Management Accounting Systems incorporate the structure, processes, tools, and content for the provision of information to aid Management Accounting in areas of management control and decision-making (Anthony & Govindarajan, 2001; Lowe, 1993).

Content concerns much the information communication of various management information reports. Several studies on the design of Management Accounting Systems (e.g. Gordon and Miller, 1976; Gordon and Narayanan, 1984; Larker, 1981; Chenall and Morris, 1986) have examined the information attributes as those relating to the focus of information, the quantification and its horizon. Chenall and Morris (1986) derive a structural set of instruments to measure the information quality of Management Accounting Systems. This information quality is referred to as MAS and is conceptualised as a formal system designed for providing information to managers. Scope, timeliness, and levels of aggregation (including an orientation to formal decision models) are three dimensions of MAS (Chenhall and Morris, 1986). MAS information is needed by managers to deal with problems such as product pricing, inventory control, and labour negotiations (Simon et al., 1954).

The scope dimension has three sub-dimensions: focus, quantification, and time horizon (Chenhall and Morris, 1986; Gordon and Miller, 1976; Gordon and Narayanan, 1984; Gorry and Scott-Morton, 1971; and Larcker, 1981). It is viewed as a continuum with narrow scope at one end and broad scope at the other. Narrow scope information has been linked with traditional accounting systems in that these systems are limited to providing information that is internally focused, financial, and history-based information. Broad-scope information is information related to external environment, which may be economic (such as GNP, market sales, and a company’s market share) or non-economic (such as consumer tastes, competitors’ actions, and technological advances). Broad scope information includes non-monetary measurement of many of these external environmental characteristics (Gordon and Miller, 1976).

Timeliness is the second dimension. It is conceptualised into two sub-dimensions: frequency of reporting and speed of reporting. Frequency pertains to how often information is provided to managers while speed refers to the time lag between when a manager requests information as provided frequently (i.e. on a daily or weekly basis) and when there is little delay between when an event occurs and when information concerning this event is provided to managers (Bouwens and Abernethy, 2000). Timely information facilitates MAS to report on the most recent events and to provide rapid feedback on management decisions (Chenhall and Morris, 1986).

The aggregation dimension provides summary information by functional area (i.e. summary reports on activities of other business units, or other functions of the organization), by time...
period (e.g. month, year) or through decision models (supporting marginal analysis, inventory models, discounted cash flow analysis, what-if-analysis, cost-volume-profit analysis) (Chenhall and Morris, 1986). Information aggregated at the functional level provides managers with information about the outcome results of elements made in other departments. The use of decision models requires information to be aggregated. Aggregation by time period enables managers to assess the results of their decisions over time. For instance, the result of a decision to introduce a new input can be evaluated in terms of its effect on the business unit’s efficiency and production quality over a period of time.

From Information Systems spectrum, these three MAS dimensions are classified under information quality, and the success of intranet is suggested to support the Management Accounting Systems.

**Intranet Success**

This research concerns much the topic of success in intranet use. Intranet is a category of Information Systems, and Information Systems success has been studied a lot in the past few decades. Zmud (1979) considers three categories of Management Information Systems success: user performance, management information system usage, and user satisfaction. Ives and Olson (1984) adopt two classes of Management Information Systems outcome variables: system quality and system acceptance. The system acceptance category is defined to include system usage, system impact on user behaviour, and information satisfaction. DeLone and McLean (1992) synthesize an Information Systems success model that comprises six dimensions as user information satisfaction, information quality, system quality, system usage, individual impact and organizational impact. Intranet is a type of Information Systems and has few differences with other types, so factors of Information Systems success incorporate those of intranet success.

The user information satisfaction variable is widely used to measure Information Systems success. DeLone and McLean (1992) cite 33 journal articles for the period from 1981 to 1987 that address empirical studies of user information satisfaction. Three reasons are identified by DeLone and McLean for the wide use of this variable: (a) satisfaction has a high degree of face validity, (b) several reliable instruments have been developed for measuring satisfaction, and (c) most other measures of Information Systems success are problematic. Because of the three reasons, user information satisfaction has been studied in numerous situations.

**Organisation Support**

Organisation support is about top management support and user training. The top management support variable refers to active and open promotion by the upper level executives as financial or spiritual support. There is evidence to suggest that top management support is positively related to the adoption and use of new technologies in organizations (Kimberley and Evanisko, 1981). In Information Systems literature, significant positive associations have been made between top management support and information technology implementation success (Fuerst and Cheney, 1982; Ives and Olson, 1984; Sanders and Courtney, 1985). When positive top management attitudes regarding a new technology have been communicated to users, there is a greater likelihood of implementation success (Damanpour, 1991). Thus, it is expected that:
**H1a:** There is an indirect relationship between top management support and intranet user information satisfaction through the extent to which hospital executives use MAS information for management and control.

The user-training variable is about on-the-job training courses and guidance for intranet applications implemented. User training is considered important to the effectiveness of the organisation as a whole. It has been found to be positively associated with the successful implementation of computerised systems (Fuerst and Cheney, 1982; Igbaria et al., 1989; Igbaria et al., 1990; Nelson and Cheney, 1987; Sanders and Courtney, 1985). Lack of training programs is a major reason for users’ dissatisfaction with their systems (Fuerst and Cheney, 1982; Sanders and Courtney, 1985). Thus, it is expected that:

**H1b:** There is an indirect relationship between user training and intranet user information satisfaction through the extent to which hospital executives use MAS information for management and control.

**Research Methodology**

Traditional research design is either positivist or interpretive approach. The former uses quantitative tools such as survey while the latter uses qualitative tools such as case study. Attewell and Rule (1991) highlight the complementarity between survey and fieldwork approaches to studying information technology, stating each is incomplete without the other. Danziger and Kraemer (1991) point out that survey research and fieldwork have always been alternative rather than competing sources of evidence and ideas. Kling (1991), Gutek (1991) and Bikson (1991) suggest that it is always best to utilise several methods of data collection to address adequately the impacts of Information Technology.

This is an exploratory research linking up Information Systems and Management Accounting that are two different disciplines of studies. To bridge the literature gap between these two disciplines, a mixed research approach basing on Gable (1994)’s research model is suggested. Gable integrates case study and survey research methods for studying Information Systems. The approach is: (1) a single pilot case study; (2) a multiple case study of four hospitals; and (3) model specification and confirmation, followed by (4) survey. The combination is designed to meet the needs of discovery of phenomena and verification of data collected, plus the need to understand research respondents' meanings and intentions while evaluating research objective and quantitative distributions of outcomes.

**Research Subjects**

Hospital managers and executives in administrative services and financial services departments of public hospitals are relevant research subjects. They help to response to case study interview and survey questionnaire concerning the uses of intranet in hospitals for supporting Management Accounting.

As the study is about computer and information system usage, IT, EDP and or System Support managers of hospitals and Hospital Authority have also been invited to consult the uses of intranet and Web-enabled applications in public hospitals, such as stages of development, classes and functions in use through case study interview.
Instrumentation

Case Study Interview

Through stratified sampling and then random sampling, interviews were conducted to 3 big and 4 small public hospitals. Each interview took 0.5 hour using 19 open-ended and semi-structured questions. Results largely reflected that top mgmt support and training contribute to intranet success in terms of intranet user information satisfaction. However, the complicated mediator role of MAS was not reviewed.

Questionnaire Instrument Modification

The survey questionnaire instruments were adopted and modified from the West. Baroudi and Orlikowski (1988)’s five items on information system satisfaction were adopted to measure intranet success. The three dimensions of MAS, scope, timeliness and aggregation, are modified from Chenall and Morris (1986) to match with Hong Kong hospital management. One item from Sirkka et al. (1991) was employed to measure top management, and two items from Goodhue (1995) was used to measure training.

Substantial instrument modification was required as these instruments were developed in the West for commercial research. Questionnaire instrument modification was done through pilot questionnaire distribution to six executives or specialists in different public hospitals.

Validity and Reliability of Questionnaire Instruments

Face validity was also tested through the pilot questionnaire distribution. The results were satisfactory after the comments by hospital executives and specialists. For ensuring validity, 6-point Likert scale was used to avoid the likelihood of central tendency of Chinese respondents. Chinese respondents have a habit of following doctrine of the mean for Likert scale survey.

Reliability was measured through Cronbach’s alpha (Cronbach, 1951). All Cronbach’s alphas measured on intranet user information satisfaction (IUIS), information quality of management accounting systems (MAS), top management support (Topsupp) and user training (Training) exceeded the generally accepted 0.65 reliability hurdle rate (see Table 2).

Questionnaire Survey

The samples of hospitals are streamed down to 37 instead of all the 40 public hospitals. 2 hospitals merge administration and finance sections with the other 2 hospitals, and 1 hospital is small in scale, with just 26 beds. Survey subjects are the general managers and executives in financial services and administrative services departments of these 37 hospitals. After telephone contact, questionnaires were first sent to the general managers of administrative services and financial services departments of the selected hospitals. They were invited to administer the questionnaire distribution to their department executives. Each survey participant was provided a questionnaire together with a covering letter and a prepaid self-addressed envelope for the questionnaire to be returned directly to the researcher. Questionnaires were precoded to enable non-respondents to be traced and followed-up. The first reminder letter was sent to those who had not responded after three weeks, and sending the second reminder letter after another three weeks followed it.
Survey Results

300 questionnaires were distributed, 164 questionnaires were returned. 157 valid questionnaires had been identified after ruling out those with insufficient data or completed by inappropriate respondents. It reflected a usable response rate of 52.33%. The respondents had held their positions for an average of 5.71 years and had longer information systems experience of 6.73 years (see Table 1).

<table>
<thead>
<tr>
<th>Age</th>
<th>36.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>47.7%</td>
</tr>
<tr>
<td>Female</td>
<td>52.3%</td>
</tr>
<tr>
<td>Years at current position</td>
<td>5.71</td>
</tr>
<tr>
<td>Years of IS experience</td>
<td>6.73</td>
</tr>
<tr>
<td>Organisation level</td>
<td></td>
</tr>
<tr>
<td>Senior Mgt</td>
<td>30</td>
</tr>
<tr>
<td>Junior Mgt</td>
<td>122</td>
</tr>
<tr>
<td>Missing</td>
<td>5</td>
</tr>
<tr>
<td>Functions</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>33</td>
</tr>
<tr>
<td>Admin</td>
<td>87</td>
</tr>
<tr>
<td>Human Resources</td>
<td>14</td>
</tr>
<tr>
<td>Procure-ment</td>
<td>14</td>
</tr>
<tr>
<td>Multi-functions</td>
<td>7</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 1  Demographic Data of 157 Valid Responses

A path analytic technique was used to test the hypothesised relationships. This technique allows examination of direct, indirect and spurious effects (Greene, 1977; Lewis-Beck, 1980). Table 5 shows the decomposition of the direct, indirect and spurious effects. The equations in the path model are as below:

\[
X_2 = P_{21} + P_{2} R_a \\
X_3 = P_{31} X_1 + P_{32} X_2 + P_{3b} R_b \\
X_4 = P_{41} X_1 + P_{42} X_2 + P_{43} X_3 + P_{4c} R_c
\]

where \(X_i\) = the variables measured; \(P_{ij}\) = the standardised partial regression coefficients (path coefficients); \(R_i\) = the standardised residuals.

The descriptive statistics, measurements and correlation coefficients for all variables are presented in Tables 1, 2 and 3 respectively. The results presented in Table 4 were used to calculate the magnitudes of the direct and indirect effects in the path model (see Figure 1). The results presented in Table 4 indicate the presence of direct effects: (1) between Topsupp and MAS; and (2) between MAS and IUIS.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS (12 items, 6 pt)</td>
<td>2.66</td>
<td>0.95</td>
<td>0.8837</td>
</tr>
<tr>
<td>Intranet user information satisfaction (IUIS)</td>
<td>3.93</td>
<td>0.92</td>
<td>0.9500</td>
</tr>
<tr>
<td>(5 items, 6 pt)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training (2 items, 6 pt)</td>
<td>3.44</td>
<td>1.08</td>
<td>0.7117</td>
</tr>
<tr>
<td>Top Mgt Support (Topsupp)</td>
<td>3.04</td>
<td>0.85</td>
<td>NA</td>
</tr>
<tr>
<td>(1 item, 5 sub-questions)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2  Measurements from 157 Valid Responses

<table>
<thead>
<tr>
<th></th>
<th>X₁ (Topsupp)</th>
<th>X₂ (Training)</th>
<th>X₃ (MAS)</th>
<th>X₄ (IUIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsupp (Top management support on IT)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training (Organisation support as user training)</td>
<td>0.131</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS (Information Quality of Management Accounting Systems)</td>
<td>0.210*</td>
<td>0.062</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>IUIS (Intranet user information satisfaction)</td>
<td>0.217*</td>
<td>0.196*</td>
<td>0.319**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

** Correlation is significant at 0.01 level (2-tailed).
* Correlation is significant at 0.05 level (2-tailed).

Table 3 Organisation Support & System Satisfaction Correlation Matrix
Hypotheses H1a and H1b were tested by examining the decomposition of the correlation coefficients between: (1) top management support (Topsupp)/intranet user information satisfaction (IUIS) and (2) Training/intranet user information satisfaction (IUIS). Line 4 of Table 5 presents the decomposition of Topsupp/IUIS linkage. The results show that a significant positive correlation coefficient ($r_{14} = 0.217$, $p<0.05$) exists between top management support and intranet user information satisfaction. The decomposition of the correlation coefficient between intranet user information satisfaction and top management support shows an insignificant direct effect ($P_{41} = 0.141$, n.s.), supplemented by a positive and significant indirect effect between top management support on intranet user information satisfaction through the extent to which hospital executives use MAS information. This result provides support for hypothesis H1a.

Line 5 of Table 5 presents the decomposition of Training/IUIS linkage. The results show a significant positive correlation coefficient ($r_{42} = 0.196$, $p<0.05$) exists between training and intranet user information satisfaction. The decomposition of the correlation coefficient between training and intranet user information satisfaction shows an insignificant direct effect ($P_{42} = 141$, n.s.), supplemented by a positive and insignificant effect between training on intranet user information satisfaction through the extent to which hospital executives use MAS information. Thus the result does not support for hypothesis H1b.

**Discussion and Limitations**

The results provide evidence on the role of MAS on the relationship between top management support and intranet user information satisfaction. It is suggested under the public hospital management in Hong Kong, top management support is an important
antecedent of MAS. Empirical support was also found for MAS to be an important antecedent of intranet user information satisfaction.

Several limitations of the study should be noted. First, one limitation of the study is the sample. Data were collected from Hong Kong public hospital executives who use intranet at work. Results may not be generalised to other industrial settings. Substantial modification of research instruments is required when conducting similar research in different industrial sectors. Second, the research examines only three dimensions of MAS information characteristics. Integration dimension has not been examined as there are only two management levels (department general manager and executive) in hospital departments, which limit the extent of information integration. Third, the research methodology is limited to questionnaires mailed to the managers and executives of hospital management departments, and case study interviews to these subject groups. Thus, the data collected in this study reflect the viewpoints of these samples of managers and executives.

The path model implies causality. It has been used to describe the relationships among the dependent, mediating and predictor variables. It is unable to assess the possibility that intranet user information satisfaction affects MAS design. The survey research methodology allows examination of statistical associations at one point in time, and the statements about direction of relationships can only be made in terms of consistency of results with the effects proposed in the theoretical casual relationships.

Contributions of the Study

This study makes contributions to both Information Systems theory and practice. In theoretical aspect, this study provides a conceptual framework viewpoint to explain how hospital management improve performance through Information Systems. Referring to the IS success model suggested by DeLone and McLean (1992), quite a number of IS researchers conducted research on how information quality and system quality contribute to Information Systems success (Armour, 1995; Ballantine et al., 1996; Hunton and Flowers, 1997; Seddon, 1997). Their scopes of studies were on general organisation Information Systems. They did not specify the role of Management Accounting in organisation Information Systems. In Information Systems and Management Accounting, little research has been conducted to study the role of MAS in intranet success. It may contribute to management knowledge by carrying out field research in these areas. This study has also developed, modified and validated research instruments that can be used to measure key indicators of top management support, user training, and MAS for intranet user information satisfaction in hospital management.

In practical aspect, efficient utilisation of limited government funding to public hospitals is now much concerned by the Government and the public in Hong Kong. This study on Information Quality of Management Accounting Systems (MAS) of the intranet and Web-enabled applications in public hospitals is worthwhile for identifying how and to what extent Information Systems support Management Accounting and control of public funded organizations as hospitals.
Panel A: Equation (1): $X_2 = P_{21} + P_{2a}R_a$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Path coefficient</th>
<th>Coefficient</th>
<th>T value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$ (Topsupp)</td>
<td>$P_{21}$</td>
<td>.131</td>
<td>1.51</td>
<td>.067</td>
</tr>
</tbody>
</table>

Adjusted $R^2 = .10$; $R^2 = .017$; $F_{1,156} = 2.282$, $p=.012$

Panel B: Equation (2): $X_3 = P_{31}X_1 + P_{32}X_2 + P_{3b}R_b$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Path coefficient</th>
<th>Coefficient</th>
<th>T value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$ (Topsupp)</td>
<td>$P_{31}$</td>
<td>.204</td>
<td>2.509</td>
<td>.013</td>
</tr>
<tr>
<td>$X_2$ (Training)</td>
<td>$P_{32}$</td>
<td>.042</td>
<td>0.522</td>
<td>.603</td>
</tr>
</tbody>
</table>

Adjusted $R^2 = .41$; $R^2 = .056$; $F_{2,155} = 3.845$, $p=.024$

Panel C: Equation (3): $X_4 = P_{41}X_1 + P_{42}X_2 + P_{43}X_3 + P_{4c}R_c$

<table>
<thead>
<tr>
<th>Variable</th>
<th>Path coefficient</th>
<th>Coefficient</th>
<th>T value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$ (Topsupp)</td>
<td>$P_{41}$</td>
<td>.141</td>
<td>1.685</td>
<td>.094</td>
</tr>
<tr>
<td>$X_2$ (Training)</td>
<td>$P_{42}$</td>
<td>.141</td>
<td>1.708</td>
<td>.090</td>
</tr>
<tr>
<td>$X_3$ (MAS)</td>
<td>$P_{43}$</td>
<td>.271</td>
<td>3.232</td>
<td>.002</td>
</tr>
</tbody>
</table>

Adjusted $R^2 = .125$; $R^2 = .0145$; $F_{3,154} = 7.277$, $p=.000$

Table 4 Results of Regression

<table>
<thead>
<tr>
<th>Path Linkages</th>
<th>Correlation</th>
<th>Direct effects</th>
<th>Indirect effects</th>
<th>Spurious effects</th>
<th>Unanalyzed relation</th>
<th>Total relation</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Topsupp ($X_1$) to Training ($X_2$)</td>
<td>0.131</td>
<td>0.131</td>
<td>-</td>
<td>-</td>
<td>0.131</td>
<td>0.131</td>
</tr>
<tr>
<td>From Topsupp ($X_1$) to MAS ($X_3$)</td>
<td>0.210</td>
<td>0.196</td>
<td>-</td>
<td>-</td>
<td>0.0141</td>
<td>0.210</td>
</tr>
<tr>
<td>From Training ($X_2$) to MAS ($X_3$)</td>
<td>0.134</td>
<td>0.108</td>
<td>-</td>
<td>-</td>
<td>0.0257</td>
<td>0.134</td>
</tr>
<tr>
<td>From Topsupp ($X_1$) to IUIS ($X_4$)</td>
<td>0.217</td>
<td>0.141</td>
<td>0.0754</td>
<td>-</td>
<td>-</td>
<td>0.217</td>
</tr>
<tr>
<td>From Training ($X_2$) to IUIS ($X_4$)</td>
<td>0.196</td>
<td>0.141</td>
<td>0.0548</td>
<td>-</td>
<td>-</td>
<td>0.196</td>
</tr>
<tr>
<td>From MAS ($X_3$) to IUIS ($X_4$)</td>
<td>.319</td>
<td>0.217</td>
<td>-</td>
<td>0.0485</td>
<td>-</td>
<td>0.319</td>
</tr>
</tbody>
</table>

Table 5 Decomposition Data of Direct, Indirect and Spurious Effects in the Path Model
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