

The Influence of Organizational Change and Culture on Organizational Effectiveness of Senior Nursing Agencies in Taiwan: Using a Moderator of Investment for Cloud Computing Technologies

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The major purpose of this study is to explore, by Confirmatory Factor Analysis (CFA), the influence of interaction on organizational effectiveness between organizational change and organizational culture respectively associated with investment for cloud computing technologies. The study objects are employees from senior nursing agencies in Taiwan, adopting the Convenience Sampling to select samples from the population, applying the method of Structural Equation Modelling (SEM) to verify the goodness-of-fit effects between Overall Model, Structure Model and Measurement Model in this study. The finding shows that while the nursing agencies under existing organizational culture are implementing the organizational changes, the investment for Cloud Computing Technologies has made significant positive moderating effect on organizational effectiveness. This implies senior nursing agencies in Taiwan should increase investment for cloud computing technologies like enhancement in computer networking.

Keywords: organizational culture, organizational change, organizational effectiveness, investment for cloud computing technologies

Introduction

Since 1993, Taiwan population structure has been officially approaching an aging society. According to calculation and estimation by Council for Economic Planning and Development (Executive Yuan, Taiwan, R.O.C., 2008), in Taiwan, the population age 65 and over will attain to 10% in 2005, 14% in 2017 and 20% in 2025. That is, the population of elderly people doubles in just 20 years. It is a crucial issue how to let elderly people live long, and live well. These are common ways to raise elderly people: 1. living with kids; 2. living with spouse or cohabitants; 3. living alone; 4. living in a nursing home or a care agency. The Organization for Economic Cooperation and Development (OECD) proposed an important strategy framework for the implementation of “Health Care Policy for Elderly People” in 2009, including: 1. improving elderly people financial situation and getting them blended to society; 2. building up a better life style; 3. building up the health care system in conformity to the elderly needs; 4. taking influential factors of health into consideration in aspects of society and environment. The Ministry of Interior, Taiwan conducted a survey

in 2009 that investigated elderly people age 65 and over about their health, living, financial and social situations and the difficulties of their daily lives. If the elderly are not able to take care of themselves in the future, the proportion of those who would like to move in nursing home or care agency reaches 42.4% (The Ministry of Interior, 2009). Most of elderly people are not willing to be burden of family that they select the nursing agency to take care of them; obviously, long-term care facilities for the elderly is increasingly demanding.

In Taiwan, a culture to encourage changes for the organization of long-term care facilities for the elderly is needed. The organizational change without support of organizational culture doubles effort but less effective (Tseng 2006). There were total 608 long-term care facilities for the elderly in Taiwan in 2001, increasing to 805 in 2010 (The Ministry of Interior, Taiwan 2010). The increased number of facilities implies higher competition between institutions, necessarily considering financial and human cost, price competition between peers, current regulations and restrictions, marketing strategies, and so on. The institutions only persist in changes to improve their organizational performance that they will not lose the game; particularly, the medical demand for the elder is getting more and more increasing in this aging society of human beings. It

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has been future trend to provide telecare services by integrated Information Communication Technologies (ICT); therefore, it makes an important issue worth more discussing. Here is the research motive for this paper. In other words, this study objects are Taiwan elderly people and it explores the influence of organizational culture and change on organizational performance using a moderating variable of investment for cloud computing technologies. The main purpose is by Confirmatory Factor Analysis (CFA) to understand the interactive influence of organizational culture and organizational change, respectively associated with the investment for cloud computing technologies, on organizational effectiveness. At last, the suggestions of the research results will be provided for reference to enhance organizational performance of Taiwan elderly care facilities. Herewith, purposes of the research are detailed as below:

- Verify and understand whether organizational culture of senior nursing agencies in Taiwan has a significant positive influence on organizational performance?
- Verify and understand whether organizational change of senior nursing agencies in Taiwan has a significant positive influence on organizational performance?
- Verify and understand whether the investment for Cloud Computing Technologies has a significant positive influence on organizational effectiveness of senior nursing agencies in Taiwan?
- Verify and understand whether the investment for Cloud Computing Technologies has a significant positive influence of interaction on organizational effectiveness of senior nursing agencies in Taiwan under existing organizational culture?
- Verify and understand whether the investment for Cloud Computing Technologies has a significant positive influence of interaction on organizational effectiveness of senior nursing agencies in Taiwan while implementing organizational changes?
- The study's conclusions will be for the senior nursing agencies' reference in sustainable development.

Literature Review

Organizational change

Hu (2007) made a definition of "Organizational Change": An organization is an open organism that must transform, adjust and change itself following internal and external environments. Internal adjustment lies in improving staff's attitude and behaviour, and upgrading organizational culture; external adjustment let organizational advantages can

be highly succeed in further achieving the goals of steady growth and better performance. And then, such adjustment and strategies are called organizational change. Other than this definition of the organizational change, Hu also classified organizational change into two categories of Proactive and Reactive based on degree of the initiative of business transformation.

Wu (1993) thought the transforming of an organization transforms as planned is the promoters' hard working step by step, going forward to the direction of the organization for change; no matter what change is, basically, the final destination must be better working efficiency and higher organizational effectiveness. Wu (1984) proposed practical techniques using various interferences for promoting necessary changes in order to enhance the working effectiveness by person, group and organization.

Similar to social change, three models of organizational change have been proposed by Lewin (1951): unfreezing, changeover and refreezing again, which indicates the organization has a chronic model with unbreakable rigidity while promoting the organizational change. If the change must be done, the first job is to "unfreezing", gradually softening and resolving rooted concepts; next, using them to be the basis of new approaches that you can proceed to "changeover" by these new approaches. Once organizational members all agree such new operational models, the concepts of new models must be reinforced that members can get used to it in working these models to form a part of organizational norms, that is, the real meaning of "unfreezing again" (Kritsonis, 2004-2005).

Lippit, Watson and Wesley (1958) had ever expanded Lewin's Change Models and classified to four sections: (1) Necessary requirements for change; (2) A certain relationship of change; (3) Strict Implementation of measures of change; (4) The maintenance of steady change and (5) End of aid relationship. Additionally, Jan (2007) mentioned staff resistance might occur during the promotion like disobeying, apartness, slowness, quitting, and so on. The reasons to cause resistance are demand for security, habits and misunderstanding, which will form a big obstacle to change. Therefore, Jan affirmed it is necessary to think how to reduce obstacles and suggested these approaches: encourage employees' participation and opinions, more mutual communication, recognition and support from employees, more training courses, offering material and mental incentives to reduce obstacles. Moreover, Hsu (2010) believed the processes of organizational change and innovation include strategies, structures, management systems, skills, organizational cultures,

production ways, technical innovation and approaches to increase organizational performance. Hence, organizational change must include: Development, Transformation, Innovation, Turnarounds and Renewal. Leavitt (1964) brought up the organization consists of four major interactive constructs, respectively Task, People, Technology and Structure briefly described as below:

-Task Change: Literally, the task means major jobs in the organization such as production, manufacturing and services, which stress on external control to take account of the jobs what the organization should do, and products or services they should provide.

-Structure Change: Structure represents the systems of communication responsibility control and working procedures that stress on internal control to take account of permission system, organizational hierarchy and sectoring departments.

-People Change: For example, they are numbers of staff, change of attitude or skills that stress on internal flexibility to take account of interpersonal relationship and workers' value and attitude inside the organization.

-Technology Change: It represents process aid tools just like work measurement system or computer that stress on external flexibility to take account of organizing skills of production systems, management procedures and information technologies.

These four constructs possess highly interdependence that any one changing its organizational construct will certainly influence the rest of them. For example, new technologies imported to the organization may impel the transformation of original structures (such as Communication Mechanism, Decision-Making Model), task change (such as production, manufacturing and services), staff change (such as numbers of employees, skills and job descriptions) that Leavitt held the opinion transformation can be done by any one or more than one among those constructs. In regard to the "Conceptual Definition" of "Organizational Change" in this study, summing up the opinions from all scholars above, for survival and sustainable development, it is necessary for schools, following internal and external environments, to make transformation, adjustment and changes. Internal adjustment lies in improving teachers' attitude and behaviour, and upgrading organizational culture; external adjustment let organizational advantages highly succeed in further achieving the goals of steady growth and better performance. Hence, the processes of organizational change and innovation are called as organizational change, including Development, Transformation, Innovation, Turnarounds and Renewal. In addition,

most types of organizational change mentioning about people, technology, task and structure in a lot of literature reviews that have complied with Leavitt's opinions (1964) about variables of "Organizational Change" and such an organizational change model has been extensively adopted until now. Therefore, this study determines to use Leavitt classifications to classify organizational change variables in this study, and the definitions of those classified variables to be manipulation definitions of this study.

Organizational culture

Organizational culture is an important factor to evaluate corporate competitiveness reflecting particular characteristics of a business and intimately related with the core competitiveness of businesses (Huang, 2009). Organizational culture is a noun often mentioned while exploring organizational behaviour. Usually, the formation of the organizational culture needs chronic shaping and evolution. There are various definitions and perspectives about organizational culture from domestic and foreign scholars.

Lee (2002) deemed that "Organizational Culture" is a result of production within an organization after long-term operation of inner systems and the interaction with outer environment. It is an integration of value, belief, consciousness, thought and action in an organization. The organizational culture exists invisibly, but visibly controls action and performance of members and organizations to form a distinct phenomenon of the organizational daily lives. It was manifested by Hua-Zheng Tseng (2006) that organizational culture means a pattern shown according to believes and expectations shared within the organization. Daft (2006) deemed that the organizational culture concerns important values, believes, thinking and behaviour criteria shared by all members in the organization. Liu (2004) mentioned in his study that excellent organizational culture will enhance the organizational effectiveness and achieve higher production capacity.

Cameron (1985) has classified organizational culture into the following four types according to introversion-extroversion of policy focus and flexibility control of organization structure: 1. Consensual Culture: The culture stresses on flexibility and introversion with a working environment inclined to openness and harmony that makes all employees feel being a part of the big family. They usually are conservative and unwilling to take much risk and changes, and their organization is flexible to stress on inner communication. Such a culture highly regards organizational cohesion to

assess members' performance particularly on their interpersonal relationship, which belongs to high flexibility and internal orientation with focus on openness, commitment and morale. 2. Developmental Culture: The culture is liable to flexibility and openness that stresses on organizational innovation and challenge, being inclined to confidence and trust in employees to take larger risk and changes. To enhance organizational flexibility and more care about employees, it focuses external activities.

This culture assesses employees' performance mainly dependent on how hard working they are. Therefore, organizational members tend to seek after growth for their behaviour motive. It belongs to high flexibility and external orientation with focus on innovation, compatibility, growth and resource gain. 3. Rational Culture: The culture stresses on cost control, getting fussy about work efficiency, more attention to the competition relationship between groups or employees. Businesses would like to take larger risk for changes, which makes the organizational culture of stabilizing and controlling for the focus on external activities.

Under such a culture, the organization assesses employees' performance emphasizing one's work performance that makes employees' behavioural motive task-oriented. It belongs to highly control and external orientation with focus on explicit goals, production and achievement. 4. Hierarchical Culture: The culture is inclined to control and introversion with the features of hierarchy of responsibilities and bureaucracy that all work procedures are explicitly stipulated and standardized. Let employees feel the company management has been built on a foundation of control and power that they are rather conservative style in action.

It is an organizational culture for the organization to stabilize and control, adjust internal operation and maintain activities. Such organizational learning under this culture always does everything by the book and laws. Therefore, the assessment of employee performance will completely follow explicit and specific criteria of evaluation. It belongs to highly control and internal orientation. Generally, according to many literature reviews, most of organizational culture types have implied four concepts of Consensual Culture, Developmental Culture, Rational Culture and Hierarchical Culture, which exactly conform to Cameron's constructs of organizational culture (1985) that such models of organizational culture have been popularly adopted. Therefore, this study decides to use Cameron's classification to implement partial constructs of confirmatory analysis.

Organizational performance

Evans, Ashworth, Chellew, Davidson and Towers (1996) manifested Organizational Performance is to measure the level of achievement of business strategies, and indices of the entire business competitiveness. Proper assessment of organizational performance will help the management understand current situation of the organization, generally using the assessment indices of incomes, production capacity, profits of the organization. Hsu (2007) put "Efficiency" and "Effectiveness" together to be "Organizational Performance". Drucker (1966) gave a good interpretation of "Efficiency" and "Effectiveness": Efficiency is doing jobs in right ways, and Effectiveness doing right jobs. Neither efficiency nor effectiveness should be neglected; however, it doesn't imply they have equal significance. It is for sure that we want to enhance both efficiency and effectiveness, but the priority is effectiveness rather than efficiency in case we can't take both into consideration.

When members of the organization are seeking after efficiency, they always would like to invest less resource but receive maximum production; however, it is very likely that they can't do a perfect job to satisfy the organization's demand; or even they achieve organizational goals, all resources provided by the organization will be used up. Hence, Drucker believed effectiveness is more important than efficiency; whether organizational goals can be perfectly achieved or not solely depends on the "Effectiveness". This study is going to explore "The Positive Influence of Organizational Culture on Organizational Performance" and "The Positive Influence of Organizational Change on Organizational Performance" to mainly discuss the "Organizational Effectiveness" of the organizational performance.

Cloud computing technologies

This term of "Cloud" first emerged in the 1990s, and usually an icon of "Cloud" has been symbolizing the entire Internet networks since and until today. Amazon's Web-based services have begun servicing readers since 2000, Yahoo providing some eminent universities with Cloud Computing for development of new network services since 2006 (Chang, Duan, Chen and Huang, 2010). "Cloud Computing" is simply a concept, but the model can be operated under highly upgraded internet bandwidth speed. In other words, "Cloud Computing" is a model for free access of information flows just like water or electricity supply merely from water and power plants. Users can simply turn on a tap or install

sockets at home, and get water and electricity without water towers or generators. Besides, the forming of “Cloud Computing” has been created by substantial upgrading of the conveyor of information flows like Internet to be a new type and evolved ecology of Information and communications technology industry. Nevertheless, why is it called “Cloud Computing”? The reason is Internet usually symbolized by an icon of cloud within computer system flowcharts, and computing is processed and sent to large remote web hosts through internet, the so-called “Cloud Computing”. And, three derivative service modes from Cloud Computing are: Infrastructure as a Service (IaaS), Platform as a Service (Paas) and Software as a Service (SaaS). No matter Infrastructure Service or software, the services provided by “Cloud Computing” will let those small and medium enterprises short of congenital resources decrease their investment for fixed assets, the cost of hardware, software, personnel expenses and operational cost; and further, they will run business more efficiently (Tsai, 2010). Again, Yong (2011) specified the so-called “Cloud Computing” is Internet, e-mail, file transfer, remote access communication, remote dialogue, or online learning, data searching, films, marketing activities, blogs, and so on. Chang (2011) considered the concept of “Cloud Computing” calculates mass data into information by learning and working that will transform information to knowledge, and then apply approaches to turn knowledge into intelligence. Chen (2011) manifested “Cloud Computing” is an intelligent management approach that can enhance performance; meanwhile, the management level must decrease different interference factors between employees other than encouraging staff potentiality. Help employees continuously being creative and learning generalization from failures, who won’t be stubborn to apply old approaches (Merit Times, 2011). In regard to the conceptual definition of Investment for Cloud Computing Technologies in this study, it is “Using the Internet to configure a Cloud Computing environment by a virtual environment, which has been proved to provide access to telecare platforms -- effective and flexible network architecture. That is the investment for Cloud Computing Technologies”. Therefore, whether organizational change and development in senior nursing agencies by investing in Cloud Computing Technologies will achieve synergistic effect on organizational development or not, particularly approaching to an aging society and increasing demand for medical services of the elders nowadays, it has been future trend to provide telecare services by integrated Information Communication Technologies (ICT).

Research Method

Based on the literature reviews described as above, here are hypotheses proposed by the study:

- Hypothesis 1 (H1): The organizational change of senior nursing agencies in Taiwan has a positive significant influence on organizational performance.
- Hypothesis 2 (H2): The organizational change of senior nursing agencies in Taiwan has a positive significant influence on organizational performance.
- Hypothesis 3 (H3): The investment for Cloud Computing Technologies of senior nursing agencies in Taiwan has a positive significant influence on organizational performance.
- Hypothesis 4 (H4): The investment for Cloud Computing Technologies of senior nursing agencies in Taiwan under existing organizational culture has a significant influence of interaction on organizational effectiveness.
- Hypothesis 5 (H5): The investment for Cloud Computing Technologies of senior nursing agencies in Taiwan has a significant influence of interaction on organizational effectiveness. In addition, based on the motive, purpose and literature reviews described as above, the conceptual research framework for this research model is established here shown as Figure. 1

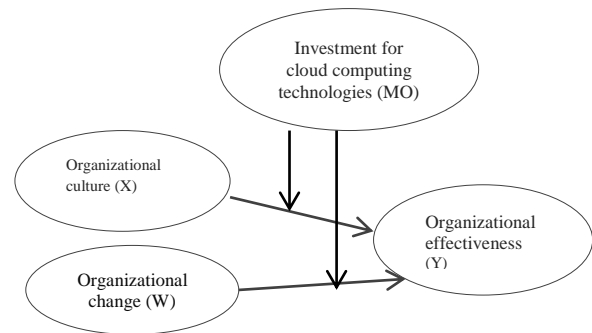


Figure 1. Research framework

Designing of the questionnaire

The questionnaire design of this study adopts “Itemization Survey” in accordance with each observable construct. The questionnaire uses Likert’s Seven-Point Scale to grade the degree of Agree or Disagree from point 7 to 1, 7 “Strongly Agree” and 1 “Strongly Disagree” that higher point represents higher degree of Agreement; on the contrary, lower point represents lower degree. Then, it proceeds to “centralize” the data of collected samples, that is, every item of points minus its average is summed up to be 0, which will eliminate the multicollinearity of

independent and moderating variables in favour of processing the test of interaction between independent and moderating variables. Here is the formula of “centralization”: $\sum (X_i - \bar{X}) = \sum Y_i = 0$

The questionnaire design of “Organizational Change” combines these scales about organizational change from Shi-Chang Long (2001) and Ji-Da Jin (1996) that have been divided to four variables: Task Change, Structure Change, People Change and Technology Change following the questionnaire design of “Itemization Survey” of four items per variable to make total 16 items accordingly. The questionnaire design of “Investment for Cloud Computing Technologies” has made reference to literature reviews of Yuan-Ren Chang, etc. (2010), and Jin-Hong Tsai (2010) to design their own questionnaire. The questionnaire design of “Organizational Culture” combines the questionnaires of organizational culture designed by Tseng (2006), Huang (2009), Lee (2002) and Cameron (1985), which contains four variables of consensual culture, developmental culture, rational culture and hierarchical culture following the Multi-Dimension Measurement to design questionnaire that there are four items per variable, total 16 items.

The questionnaire design of “Organizational Effectiveness” divides variables into inner orientation and outer orientation in accordance with Rodsutti and Swierczek (2002) classification of effectiveness. Additionally, the scale of the study on Leadership, Organizational Culture and Organizational Effectiveness, made by Sun (2002) who focused on Taiwan regional technology colleges under the Competing Values Framework (CVF), has revised the questionnaire items into two variables. There are 8 items per variable, total 16 items.

Sampling

This study adopts Convenience Sampling from employees of senior nursing agencies in Taiwan to do the questionnaire survey. It has sent out 10 copies expert questionnaires for a Pilot-test, which was modified based on suggestions from experts to go on a Post-test. Afterward, formal questionnaires are 250 copies, valid samples 212 copies at a response rate of 84.8%.

Data and measurement model of the questionnaire

Structural Equation Modelling (SEM) has been applied to the Confirmatory Factor Analysis (CFA) on the research framework in order to verify the proposed one in this study. This study has divided the questionnaire into four Latent Variables of

organizational culture, organizational change, investment for Cloud Computing Technologies and organizational effectiveness, and wherein each has been divided into the following Observable / Explicit Variables with several items respectively for survey. Then, the received data after survey was processed to set up original questionnaire files.

In connection with the configuration of this research framework’s measurement system, though the questionnaire design has been done by “Multi-Dimension Measurement”, “Double Measurement” or “Single Measurement” was implemented while considering smoother processes of computer software (Shun-Yu Chen, 2010). The questions for this study were modified from Jin (1996), Long (2001), Tseng (2006), Huang (2009), Lee (2002), Cameron (1985), Chang et al (2010), Tsai (2010), Rodsutti and Swierczek (2002), Sun (2002), and Huang (2004).

Table 1. Number of questionnaire items for implicit variables and observable variables

Implicit variables	Explicit variables	Number of Items
Organizational change (X)	Task change	4
	Structure change	4
	People change	4
	Technology change	4
Organizational culture	Consensual culture	4
	Developmental culture	4
	Rational culture	4
	Hierarchical culture	4
Investment for cloud computing technologies (MO)	Internet teaching	6
	Network database	4
	Network software and hardware equipment	6
	Organization effectiveness (Y)	Organization effectiveness

Results and Analysis

Linear structure model analysis

The Confirmatory Factor Analysis (CFA) is an opposite approach to the Exploratory Factor Analysis (EFA). This study has made a Confirmatory Factor Analysis (CFA) on these four Unobservable Variables (Implicit Variables): “Organizational Change”, “Organizational Culture”, “Investment for Cloud Computing Technologies” and “Organizational Effectiveness”.

Structural Equation Modelling (SEM) consists of Structure Model and Measurement Model that they can just effectively solve the cause-effect relation between Implicit Variables and Latent Variables. Besides, the verification of models in this study has covered three parts: (1) Goodness-of-fit for Measurement Model, (2) Goodness-of-fit for

Structure Model and (3) verification of overall goodness-of-fit effects to make sure if their conformity to goodness-of-fit indices; i.e., overall goodness-of-fit effects SEM for SEM model can be judged by using related goodness-of-fit indices (Diamantopoulos & Siguaw, 2000).

Analysing fit of measurement model

The factor loading for each Unobservable Variable, Latent/Implicit Variable, and Observable Variable, Manifest/ Explicit Variable mainly measures linear-related strength of Explicit and Implicit Variables. If factor loading is close to 1, it indicates the observable variable is able to make a better judgment on the unobservable variable. In this study, every observable variable’s factor loading is between 0.7 and 0.9 that shows excellent reliability. Consequently, the model’s “Measurement System” has “Observable Variables” (i.e. Manifest Variables) can individually make proper judgment on “Unobservable Variables” (Latent Variables).

Moreover, Average Variance Extracted (AVE) is to figure out the explanatory power of variance between “Unobservable Variables” (Latent Variables) versus “Observable Variables” (Manifest Variables); higher VE value inclined to a Latent Variable (Unobservable Variable), and higher reliability and greater convergent validity. Usually, VE value must be larger than 0.5 to indicate the explanatory variance is larger than measurement error (Fornell and Larcker, 1981).

In this study, all AVEs are larger than 0.5 that Explicit Variables have accomplished excellent reliability and convergent validity (Table 2 and Figure 1).

Table 2. Judgment indicators of internal measurement model

Unobservable variables (implicit variables)	Observable variables centralized double measurement	Factor loading	Variance extracted, VE
Organizational Culture (X)	X1C	0.86	0.63
	X2C	0.87	0.59
Organizational Change (W)	X3C	0.86	0.63
	X4C	0.87	0.59
Investment for Cloud Computing Technologies (MO)	Z1C	0.84	0.58
	Z2C	0.81	0.57
X*MO	X1Z1C	0.74	0.56
	X2Z2C	0.78	0.56
W*MO	X3Z1C	0.75	0.56
	X4Z2C	0.76	0.56
Organization Effectiveness (Y)	M1C	0.83	0.57
	M2C	0.85	0.58

Analysing fit of structure model

Path Analysis Results of Structure Model

After the overall model has passed the Goodness of Fit Test, this study lists the results in the Table 4.2: Parameter Estimates and S.E. between Implicit Variables, and Critical Ratio (C.R.). Besides, the Table 4.2 tells us that: the investment for cloud computing technologies makes a significant influence of interaction on organizational effectiveness for senior nursing agencies in Taiwan under the existing organizational culture; furthermore, it also makes a positive and significant influence of interaction on organizational effectiveness for senior nursing agencies in Taiwan while going on organizational changes. In other words, the investment for cloud computing technologies provides the positive moderating effect to accomplish multiple synergies of organizational effectiveness

Table 3. Path Analysis Results of Structure Model

Path Coefficients between Implicit Variables		Estimate	S.E.	C.R.	P	Label	
Organizational Culture (X)	→	Organizational Effectiveness (Y)	.461	.093	4.957	***	a
Organizational Change (W)	→	Organizational Effectiveness (Y)	.171	.093	1.839		b
Investment for Cloud Computing Technologies (MO)	→	Organizational Effectiveness (Y)	.432	.021	20.571	***	c
X*MO	→	Organizational Effectiveness (Y)	.681	.024	28.375	***	d
W*MO	→	Organizational Effectiveness (Y)	.632	.023	27.478	***	e
X	→	X1C	.861	.161	5.347	***	
X	→	X2C	.872	.162	5.382	***	
W	→	X3C	.682	.163	4.184	***	
W	→	X4C	.678	.158	4.291	***	
MO	→	Z1C	.843	.333	2.531	***	
MO	→	Z2C	.812	.313	2.594	***	
X*MO	→	X1Z1C	.732	.284	2.577	***	
X*MO	→	X2Z2C	.792	.291	2.721	***	
W*MO	→	X3Z1C	.738	.283	2.608	***	
W*MO	→	X4Z2C	.797	.289	2.758	***	
Y	→	M1C	.834	.152	5.486	***	
Y	→	M2C	.851	.153	5.562	***	

Remark: * indicates P<0.05, ** P<0.01, and *** P<0.001

Coefficient of determination

Degree of explanation is the R2 value (Squared Multiple Correlation, SMC) that comes from "Independent Variable" versus "Dependent Variable"

of each Implicit Variables. Therefore, the adjusted R2 value shown in tables 4 & 5 indicate that the implicit independent variable has adequate explaining ability on the implicit dependent variable respectively.

Table 4. Coefficientsa [Hierarchical Regression].

Model	R	R Square	Adjusted R Square	Sid. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.887 ^a	0.787	0.783	6.916	0.787	179.218	2	97	0.000
2	0.895 ^b	0.801	0.795	6.711	0.015	7.024	1	96	0.009

- a. Predictors: (Constant), MO, X and W
- b. Predictors: (Constant), MO, X, W, X *MO and W*MO

Table 5. Coefficients^a

Coefficients of Determination	Adjusted R ²
Organizational Culture (W), Organizational Change (X), Investment for Cloud Computing Technologies (MO) versus Organizational Effectiveness (Y)	0.783
Organizational Culture (W), Organizational Change (X), Investment for Cloud Computing Technologies (MO), X*MO and W*MO versus Organizational Effectiveness (Y)	0.795

The indices of fit of the overall model

The purpose of using the Structural Equation Modelling (SEM) for this study's research model lies in exploring the relationship between unobservable variables within the Structure Model, and whether the Measurement Model does have measurement reliability or not, and measuring overall goodness-of-fit effects for this study, for which the indices are χ^2 ,

d.f., GFI, AGFI, NFI, CFI, RMR, RMSE, and so on. Usually, they are $\chi^2/d.f. < 5$; $1 > GFI > 0.9$; $1 > NFI > 0.9$; $1 > CFI > 0.9$; $RMR < 0.05$; $RMSEA < 0.05$ (Bagozzi & Yi, 1988).

Generally, the overall goodness-of-fit of this study is $\chi^2/d.f. < 5$, and GFI, AGFI, NFI all larger than 0.90, but RMR value smaller than 0.05 that good goodness-of-fit effects for this study have been shown as the Table 6.

Table 6. Overall goodness-of-fit effects scale

Determination index	χ^2	DF	GFI	NFI	AGFI	CFI	RMR	RMSEA
Fit value	46.918	39	0.907	0.906	0.915	0.908	0.024	0.026

Standardized results of SEM analysis

As shown in Figure. 2, it is the result of overall structure after being standardized by the computer operation.

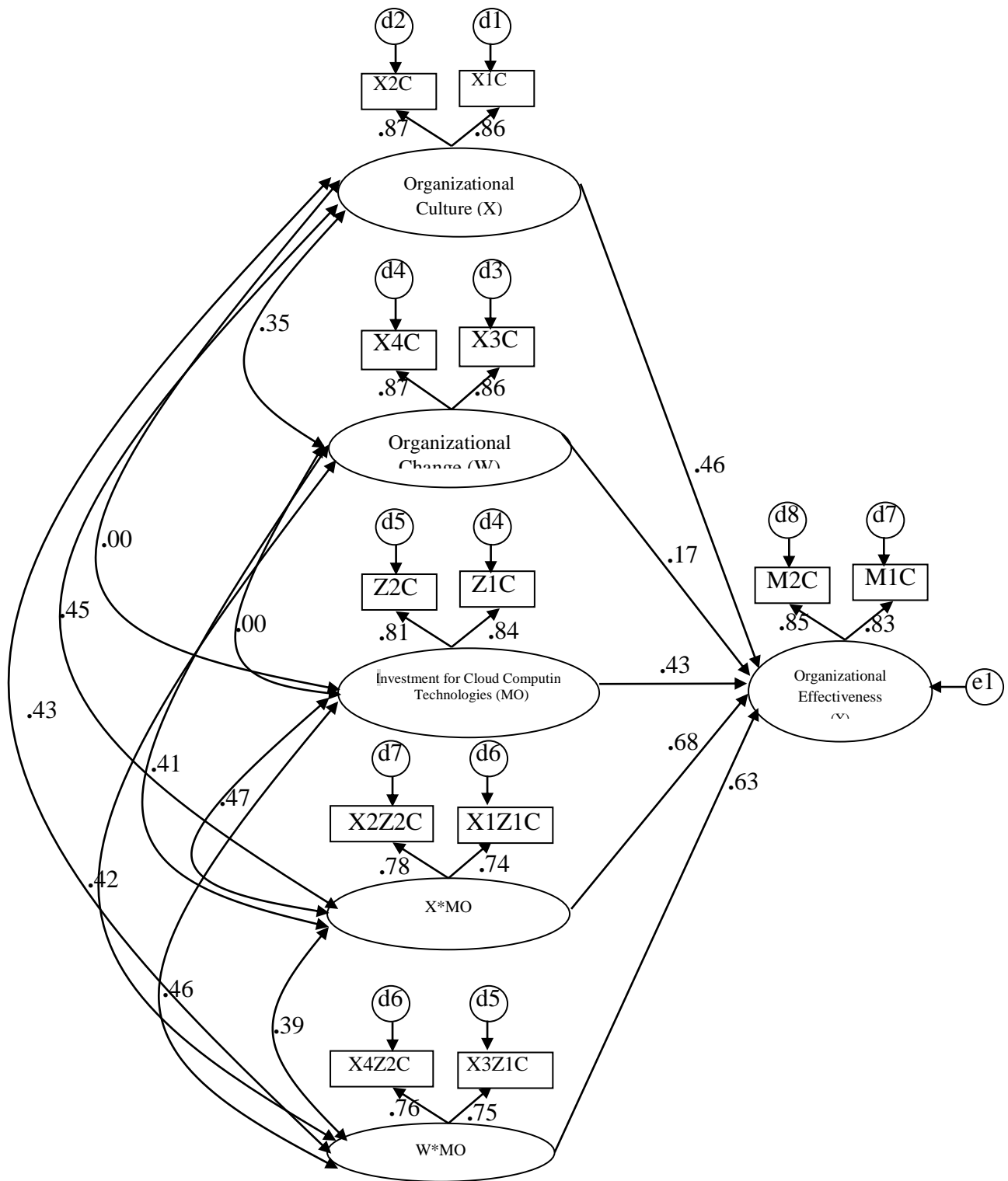


Figure 2. Standardized results of SEM analysis

Analysing and verifying path effect of structure model

For the test of Moderating Variables, this study prior performs the Hierarchical Regression analysis (shown as

Table 7), and next centralizes the Hierarchical Regression between Y versus X, MO, XMO, and t-test in order to test the significance of Coefficient c whether it is supported or not (i.e. whether c is zero or not), shown as Table 7.

Table 7. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	33.709	.673	.621	44.642	.000
X	9.020	.919	.462	6.831	.000
W	9.121	.928	.171	1.723	.132
MO	6.985	.410	.432	17.026	.000
X*MO	1.407	.531	.681	27.650	.000
W*MO	1.426	.536	.631	38.367	.000

a. Dependent Variable: Organizational Effectiveness(Y)

Based on the Table7, it has been known the Path Coefficient of MO*X versus Y is 0.681 and W*MO versus Y 0.631, which accordingly make moderating effect on X*MO and W*MO versus Y.

This study has obtained the following test results from the analysis above:

-Organizational culture of senior nursing agencies in Taiwan makes a positive significant influence on organizational performance with a standardized path coefficient 0.46 to make the Hypothesis H1 fully supported (Hypothesis Fully Supported).

-Organizational change of senior nursing agencies in Taiwan makes a positive but not significant influence on organizational performance with a standardized path coefficient 0.17 to make the Hypothesis H2 partially supported (Hypothesis Partially Supported).

-Testing and learning the investment for Cloud Computing Technologies of senior nursing agencies in Taiwan makes a significant positive influence on organizational effectiveness with a standardized path coefficient 0.43 to make the Hypothesis H3 fully supported (Hypothesis Fully Supported).

-The investment for Cloud Computing Technologies of senior nursing agencies in Taiwan under existing organizational culture makes a significant influence of interaction on organizational effectiveness with a standardized path coefficient 0.68 to make the Hypothesis H4 fully supported (Hypothesis Fully Supported).

-The investment for Cloud Computing Technologies of senior nursing agencies in Taiwan while implementing organizational change makes a significant positive influence of interaction on organizational effectiveness with a standardized path coefficient 0.63 to make the Hypothesis H5 fully supported (Hypothesis Fully Supported).

Conclusion and Suggestions

Based on data analyses and results above, the following concrete conclusions have been made:

As for SEM model verification, the SEM that this study has established and its Measurement Model, Structure Model and Overall Model all possess excellent goodness-of-fit to reveal quite a good model fitting.

As for practical verification; the investment for Cloud Computing Technologies has a significant influence of interaction on organizational effectiveness of senior nursing agencies in Taiwan under existing organizational culture. The investment for Cloud Computing Technologies has a significant positive influence of interaction on organizational effectiveness of senior nursing agencies in Taiwan while implementing organizational changes.

Contribution of the Study

Innovation of Research Methods: According to past literature reviews, most multi-regression analyses were applied in exploratory research with less consideration given to the moderating effect of implicit variables and the research framework of Confirmatory Factor Analysis. Major constructs of the study topic are implicit variables that multi-regression is not an appropriate analysis for them. Instead, it is necessary to use Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) respectively for a measurement tool and model framework in this study; therefore, this study has used quite innovative research methods.

As for practical interest: Scholars were inclined to stress on the Exploratory Factor Analysis (EFA) in their past research topics. Now, this study combines prior relevant research results from those scholars, and set up its modelling and verify goodness-of-fit of the model to understand whether such a model possesses excellent goodness-of-fit effects or not. So, the topic of this study is an important practice of Confirmatory Factor Analysis (CFA) worth further research reference for related fields of studies in the future as well as the results can be for the case school administration reference to set up strategies for organizational change; therefore, this study makes most valuable reference.

Restrictions and Suggestions of the Study

-Due to limited research resources, this study adopts non-probability convenience sampling, which uses this base of convenience to select samples only giving consideration to access or measurement convenience; however, it might make greater sampling bias that the reliability of results will be inclined to be worse. The suggestion is made to upcoming researchers that they can use alternative Simple Random Sampling or Stratified Random Sampling Method for sample selection.

This study is a Confirmatory Factor Analysis (CFA). It should best design simple verification model while modelling to prevent it from a complicated model producing poor goodness-of-fit (Shun-Yu Chen, 2010). Hence, this study only considers the influence of organizational change and culture on organizational performance, and uses investment for cloud computing technologies as a moderating variable.

This study is limited to the Confirmatory Factor Analysis (CFA) for this case. In the future, upcoming researchers can consider to expand their fields or to verify different businesses by comparison between various businesses in the same model to make different good-of-fit.

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