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## The influence of knowledge management and marketing innovation strategies on marketing performance: a case study of a Taiwan's funeral service company

### Abstract

The main purpose of this study is to realize the influence of knowledge management and marketing innovation strategies on marketing performance, taking the example of the biggest and the most representative Taiwan's funeral service company – Lung Yen. This study uses the method of convenience sampling and structural equation modeling (SEM) to carry out empirical analysis of knowledge management and marketing innovation strategies vs. marketing performance. It was found that (1) knowledge management has significant positive influence on marketing performance, and (2) marketing innovation strategy has significant positive influence on marketing performance.

**Keywords:** knowledge management, marketing innovation strategies, marketing performance.

### Introduction

Recently funeral businesses with a new type of organization have been constantly renovating themselves in terms of products and services, in order to satisfy customer needs. In a context of continuous change in the overall environment and in market needs, the way in which these new funeral businesses apply market knowledge management and innovative service strategies has become the key to enhance organizational performance (Kao, 2008).

The rise of customer self-consciousness has brought forth consciousness of autonomy in funeral matters, which consists in people's demand for quality and dignity in funeral matters. The application of market knowledge management has enabled funeral business of the new type to create needs that better match today's consumer needs. For example, while in the past, death was a taboo issue in the society, and the lack of education on death and funeral affairs resulted in the scarceness of information on these matters and the consequent lack of transparency in costs, prompting funeral businesses to overcharge their customers; in the present time, the transformation of the funeral market has favored the rise and widening application of innovative service strategies as a result of knowledge management. Management guru Peter Drucker (1986) stated that knowledge would replace machinery, capital, raw material and labor to become the most important production resource for enterprises. In contrast to most assets that tend to face decreasing return on asset, knowledge is one that allows employees to not only gain profit through it, but continuously enrich and adjust the content of the knowledge bank, thereby increasing the value of knowledge.

In order to increase the enterprise's competitiveness, it has become crucial to have knowledge management and market sensitivity. Knowledge management is a business strategy that can help an enterprise cope with the ever-changing market environment, enhance its competitiveness, and provide help in examining internal organization coordination. Enterprises tend to be convinced that they already have a considerable understanding about their customers and the market situation, this erroneous recognition causes managers to make wrong decisions. In Drucker's view, only the customers truly understand the market; therefore, enterprises must carry out exhaustive market investigation and analysis to understand customer behavior by constantly asking them questions, and anticipate their possible future needs, going from a passive marketing approach to an active one. The importance of this aspect has gradually gained recognition in the corporate world, and this study is an attempt to investigate the impact knowledge management and marketing innovation strategy on organizational performance. This study took the example of the biggest and the most representative Taiwan's funeral service company – Lung Yen – and the purposes of the study are as follows:

- ◆ to realize whether knowledge management has significant positive influence on marketing performance or not in the example;
- ◆ to understand whether marketing innovation strategy has significant positive influence on marketing performance or not in the example; and
- ◆ to make the results of this study available for reference to businesses in the related sector.

### 1. Literature review

The literature review for our study is centered on three dimensions: knowledge management, marketing innovation strategy and marketing performance. These are discussed as follows:

**1.1. Knowledge management.** For an enterprise, knowledge management is like fundamental infrastructure in organization and technology. It is defined as “the continuous process of providing accurate knowledge at appropriate times to employees who need it, with a view to helping them take accurate actions to enhance organizational performance.” In today’s world of rapidly increased information, what enterprises were proud of in the past – technique, intensive labor, and equipment – no longer offers any assurance in keeping an advantage on the market. Knowledge management, instead, aims to acutely react to the external environment and proceed accordingly to gather information, make decisions and take actions; it is also a necessary measure in flexible management, applied in response to various circumstances, and a comprehensive strategy ensuring constant self-rebuilding within the enterprise.

Arthur Andersen and APQC (1996) propose a knowledge construction model composed of 7 procedures: create, identify, collect, adopt, organize, apply, and share.

In our study, the main focus will be on the three constituting aspects of knowledge management:

- ◆ knowledge absorption,
- ◆ knowledge sharing,
- ◆ knowledge storage.

*1.1.1. Knowledge absorption.* The process of knowledge management starts with the creation of new knowledge originating from both within and outside an organization. The sources of knowledge from inside the organization include learning, research and development, accumulation of experiences, and on-the-job learning, while external knowledge sources include the external environment, customers, and competitors.

Based on his study on knowledge transfer and absorption between Taiwan parent companies and Mainland subsidiaries, Huang (2001) proposed a correlation between the quality of innovation performance and the path dependency level of technology, which means that, if an organization has already conducted R&D or made investments in relation to the technology in question, then it will be easier for it to achieve internal innovation after absorbing external capabilities.

For his part, Hsieh (2005) proposed, based on his study of the impact of knowledge absorption capability on the speed of new product development in the textile sector, the hypothesis that “the more an organization possesses know-how acquired earlier on, the more the development team will be able to make use of it in determining the orientation of

product development, thus reducing the time needed for trial and error and consequently saving on development time: the result being an acceleration in product development speed.”

*1.1.2. Knowledge sharing.* In an individual’s intellectual activity, knowledge sharing usually consists of various types such as presentation of results, small discussion sessions, corporate meetings, etc., or it can take the form of intellectual exchange with others via the use of Internet, producing wisdom in the process. The exchange of knowledge with others facilitates new inspiration and the production of new ideas, thus helping the creation of knowledge.

Pan (2001) made a study on the causes of product knowledge sharing among collaboration companies and its impact on performance in new product development in Taiwan’s electronic sector, and her hypothesis is that “the higher the level of knowledge enjoyed by the companies, and the higher the degree of product knowledge sharing among collaboration partners, then the higher the performance in new product development.” This hypothesis is supported by the results of the study, which means that knowledge sharing is positively correlated with organizational performance.

Kao’s (2008) study on the relationship between work satisfaction, knowledge sharing and work performance, using the example of 3M’s Taiwan subsidiary, raises seven research questions, and one of them is: “What is the relationship between the knowledge sharing of 3M Taiwan’s employees and their work performance?” The results of the study show that knowledge sharing behavior has a significant positive correlation with the three dimensions of work performance, that is to say, the more employees are used to sharing knowledge, the higher their work performance – including efficiency, effectiveness and quality – will be.

Lin’s (2008) study on the relationship between characteristics of works, the willingness to share knowledge and work performance, based on the example of Sin-Jhuang City Hall, Taipei County, surveyed such questions as the relationship between knowledge sharing among the employees working in the city hall and their work performance. Do employees’ willingness to share knowledge and their behavior influence work performance? The results of the study show that the willingness to share knowledge is in significant positive correlation with work performance, meaning that if the willingness to share knowledge is high, work performance may also be enhanced.

*1.1.3. Knowledge storage.* Information software is used as auxiliary tools for acquiring knowledge

management know-how, for information processing and knowledge integration. Without computers, knowledge management will not work successfully. Therefore, it is important to set up a good internal information system within the corporate organization so as to provide employees with assistance in knowledge accumulation.

Taking the example of new employees in the insurance sector, Liao (2006) studied the relationships among orientation toward education/training, storage of learning and knowledge, and the marketing performance of the sales personnel. The hypothesis is that learning and knowledge storage have significant effects on sales performance.

**1.2. Marketing innovation strategies.** Innovation is not equal to creativity. Majaro (1991) stated that innovation is the practical application of creativity, helping the organization to achieve its aims in a more efficient way. Many studies in this domain have been limited to scientific and technological fields, but Drucker (1986) contended that the term of innovation is basically non-technological in nature, and ought to belong to economic or social sciences; innovation should mean “change in the value and satisfaction obtained from resources by the customer”. Drucker’s (1986) definition of innovation makes us realize that only what is valuable for economy or society can be called innovation. Booz, Allen & Hamilton (1982) investigate the creation of brand-new products as well as additions to existing product lines. In the framework of our study, two types of creation in marketing innovation strategy, namely, production innovation and marketing method innovation, are proposed to explain the structure of marketing.

*1.2.1. Product innovation.* Zong & Jin (1986) believed that the definition of product innovation has to do with the advance of a nation’s technology. For developed nations, product innovation means product invention, that is to say, the creation of new products not yet seen in the world. By contrast, for developing nations, product innovation means bringing in existing products, copying them, improving them, and then putting them on the market, becoming a new method of product commercialization.

Yang (2007) surveyed the relationships between market orientation, orientation toward business creation, product innovation and organizational performance. He also proposed that product innovation has a mediating effect on market-oriented behavior and organizational performance,

and the relationships between market-oriented behavior, product innovation and organizational performance were investigated. The result of his study showed that product innovation has a positive influence on organizational performance.

*1.2.2. Marketing method innovation.* The American Marketing Association defines marketing in the following terms, “Marketing is a commercial activity whose main purpose is to channel products or services offered by producers into the hands of customers.” Since Professor Jerome McCarthy of Michigan State University proposed the concept of marketing mix (or the so-called 4P) in the early 1960’s, marketing has further diversified into various other types of marketing methods as a result of constantly changing customer needs and in response to a higher variety of industries.

Huang (2001) analyzed the relationships between knowledge management, innovation strategy and organizational performance, taking Taiwan’s integrated circuit sector as an example. The findings revealed the positive influence of marketing method innovation on organizational performance.

*1.2.3. Marketing performance.* Performance is a comparison of actual output and originally set objectives. It serves to measure how effectively or efficiently an organization utilizes resources and satisfies customer needs to achieve the standards targeted by the organization.

Venkatraman & Ramanujam (1986) observed that organizational performance can be considered from the following three dimensions, each composed of its subjective and objective sides:

- ◆ financial performance;
- ◆ business performance; and
- ◆ organizational performance.

For simplicity, we adopted business performance (i.e. sales growth rate) to represent overall performance. And based on the above literature, our study proposes two main hypotheses:

*Hypothesis 1 (H1): Knowledge management has significant positive influence on marketing performance.*

*Hypothesis 2 (H2): Marketing innovation strategy has significant positive influence on marketing performance.*

**1.3. Structure of the study.** Based on the above arguments, we can obtain the following research scheme (see Figure 1):

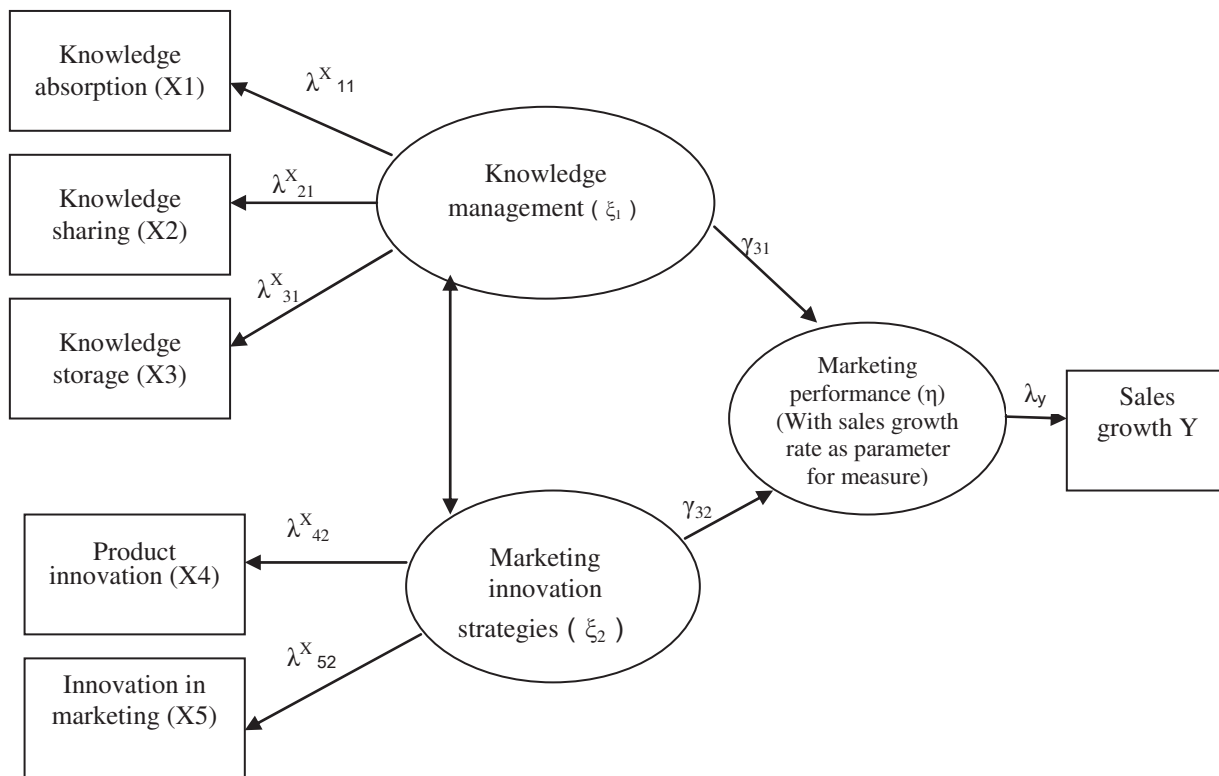


Fig. 1. Research framework of this study

## 2. Research methodology

This study uses the method of convenience sampling structural equation modeling (SEM) to carry out empirical analysis about influence of knowledge management and marketing innovation strategies on marketing performance. In other words, in order to solve the questions raised by this study, the following methodology is used.

**2.1. Research target and sampling.** By means of convenience sampling, the study took the employees of Lung Yen Life Services Co. Ltd. (Taiwan) in Taiwan as the sample target for research. Thirty pretest questionnaires were administered in October 2009, and 320 formal questionnaires were administered in December 2009, with 200 valid responses or a valid retrieval rate of 62.5%.

**2.1.1. Design of the questionnaire.** The questionnaire was composed of two main dimensions constituted respectively by the latent variables of knowledge management and marketing innovation strategy, and each main dimension was measured via sub-dimensions containing the manifest variables shown below. The manifest variable was measured with the Likert-type 5-point scale with five choices: strongly agree (5 points), agree (4 points), uncertain or don't know (3 points), disagree (2 points) and strongly disagree (1 point). The respondents could choose any selection based on situations they were facing.

The content of questionnaire is as follows:

- ◆ Knowledge management: The measurement scale of this category was structured with reference to the views of Tsai, Y.C. (2006) on knowledge management and the cooperation of authors.
- ◆ Marketing innovation strategies: The measurement scale of this category was structured with reference to the views of Hsu, P.K. (2006) on knowledge innovation strategies and the cooperation of authors.

Table 1 shows the structure of the main dimensions and the sub-dimensions with their corresponding variables, as well as the number of questions under each manifest variable.

**2.1.2. Reliability and validity of measurement.** The analytical measurement of this study used Cronbach's  $\alpha$  and CR values for reliability and validity, respectively. Nunnally (1978) suggested that loading values be greater than 0.5 for all factors. All values of Cronbach's  $\alpha$  were greater than 0.7 and all CR values were greater than 0.7 (see Table 1), indicating reasonable reliability for all latent variables. Furthermore, all factor loadings of manifest variables exceeded 0.7 (see Table 2), which suggests that all constructs have good convergent validity. The correlation coefficient of knowledge management and marketing innovation strategy was 0.465 (see Table 3), which was less than 0.5, showing good discriminant validity.

Table 1. The value and CR of main dimension and sub-dimension

Main dimension	Sub-dimension	No. of questions	$\alpha$	CR	Reference information
Knowledge management	Knowledge absorption	6	0.93	0.96	Referred and revised from, "A study on the impact of market orientation in the enterprise on internal performance, employees' knowledge management capabilities, and performance in innovation", Dayah University
	Knowledge sharing	8			
	Knowledge storage	10			
Marketing innovation strategies	Product innovation	6	0.90	0.94	
	Marketing innovation methods	4			
Marketing performance	Sales growth as a measurement index	6	0.87	0.83	

Table 2. Estimated parameters of factor loadings and t values

Main dimension	Sub-dimension	Estimated value of factor loadings	t value
Knowledge management	Knowledge absorption	0.97	14.386
	Knowledge sharing	0.92	12.419
	Knowledge storage	0.93	13.142
Marketing innovation strategies	Product innovation	0.98	14.409
	Innovation in marketing methods	0.90	11.958

Table 3. Estimated parameters of path coefficients and correlation coefficient

	Estimated value of coefficient	t value
Knowledge management → marketing performance	0.423*	2.697
Marketing innovation strategies → marketing performance	0.463*	2.955
Knowledge management ↔ Marketing innovation strategies	0.465*	2.971

Note: \* means t value is significant ( $\alpha = 0.05$ )

**2.2. Operational definitions.** This study is centered on three dimensions: knowledge management, marketing innovation strategy and marketing performance. The operational definitions are briefly described respectively as follows:

*2.2.1. The definition of knowledge management.* It is like a fundamental infrastructure in organization and technology. It is defined as "the continuous process of providing accurate knowledge at appropriate times to employees who need it, with a view to help them take accurate actions to enhance organizational performance." In addition, this main dimension includes three sub-dimensions such as knowledge absorption, knowledge sharing and knowledge storage.

*2.2.2. The definition of marketing innovation strategies.* In the framework of our study, two types of creation in marketing innovation strategy, namely, production innovation and marketing method innovation, are proposed to explain the structure of marketing. In other words, this main dimension of marketing innovation strategies includes two sub-dimensions: production innovation and marketing method innovation. The former means product invention, that is to say, the creation of new products not yet seen in the

world, the latter means the methods of innovation in marketing.

*2.2.3. The measurement of marketing performance.* In this study, we use sales growth rate as a proxy variable to measure marketing performance.

**2.3. Research methods and process.** Apart from literature review, this study conducted interview and descriptive case study as follows:

1. Expert interviewing: Interviews in this study are qualitative semi-structured interviews which, combining structured and unstructured interview, start with predetermined questions and then shift to open ones to observe and capture complex and ever-changing phenomena. To obtain firsthand and precise information, these interactive interviews invite comprehensive and meaningful responses on the research topic, refraining from interferences unless the interviewees deviate from the topic. The outcomes of the interviews are interpreted, compared, supplemented and modified.

2. Descriptive case study: Case studies analyze specific cases by collecting relevant information of the cases and deriving reasonable cause-and-effect inference with the aim to propose explanations, test theories, or generate new theories. This study adopted the single descriptive

case study approach with two expectations: (1) to understand the process and prerequisites of the occurrences, and (2) to bring about inspiring research findings which manifest the wholeness and instantaneity of the phenomena. The major data sources are:

- ◆ Documents: useful agendas and minutes of conferences on the research population;
- ◆ Archives: records of relevant activities in a period of time;
- ◆ Interviews: open interviews in which respondents offered facts or ideas for further exploration.

### 3. Analysis and results

In this section, the above methodology is used for analysis with a view to achieving the expected outcome.

#### 3.1. Linear structural model analysis.

Confirmatory factor analysis, as opposed to exploratory factor analysis, is the approach adopted for our study regarding its research structure, and structural equation modeling (SEM) brings an effective solution to the causal relationship between latent variables. AMOS is a statistical program used to test structural equations, and the confirmatory factor analysis is composed of three parts, i.e. (1) the fit degree of the measurement model, (2) the fit degree of the structural model, and (3) the examination of whether the overall fit degree of the model matches the fix index.

3.1.1. *The structural equation matrix of the study.* The structural equation matrix of the study is as follows:

- ◆ Measurement matrix for exogenous variables

$$\begin{pmatrix} X1 \\ X2 \\ X3 \\ X4 \\ X5 \end{pmatrix} = \begin{pmatrix} \lambda_{11}^x & 0 \\ \lambda_{21}^x & 0 \\ \lambda_{31}^x & 0 \\ 0 & \lambda_{42}^x \\ 0 & \lambda_{52}^x \end{pmatrix} \begin{pmatrix} \xi_1 \\ \xi_2 \end{pmatrix} + \begin{pmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \\ \delta_5 \end{pmatrix}$$

- ◆ Measurement matrix for endogenous variables

$$Y = \lambda_Y \eta + \varepsilon.$$

- ◆ Structural equation

$$\eta = \gamma_{31} \xi_1 + \gamma_{32} \xi_2 + \zeta.$$

The purpose of utilizing linear structure for research analysis is to investigate the relationships among different dimensions, and fit indexes should be: GFI > 0.9; NFI > 0.9; CFI > 0.9; RMR < 0.05; RMSEA < 0.05 (Bagozzi & Yi, 1998). Our study shows GFI and AGFI between 0.90 and 0.96, and RMR at 0.010, which indicates considerable questionnaire consistency, i.e. conformity to the model's fit degree. The details are shown in Table 4.

Table 4. Evaluation of model's fit degree

Determination index	$\chi^2$	DF	GFI	NFI	AGFI	CFI	RMR	RMSEA
Fit value	25.602	9	0.926	0.967	0.917	0.976	0.010	0.043

3.1.2. *Analysis of internal fit degree for the overall model.* R<sup>2</sup> value (squared multiple correlation, or SMC) expresses the reliability of latent variables (main dimensions) and individual items of manifest variables (secondary dimensions), and it mainly allows for measurement of the intensity of the linear correlation between the individual items and the latent variables. The more the R<sup>2</sup> value is close to 1, the higher the intensity of linear correlation. Table 5 shows the R<sup>2</sup> values of the different variables in the study.

Table 5. Determination indexes for the model's internal quality

Main dimension	Secondary dimension	R <sup>2</sup> value
Knowledge management	Knowledge absorption	0.676
	Knowledge sharing	0.608
	Knowledge storage	0.589
Marketing innovation strategies	Product innovation	0.670
	Innovation in marketing methods	0.634
Marketing performance		0.668

3.1.3. *Result of model analysis.* After the models have gone through fit degree determination, the estimated parameters (standard) of latent variables and the estimated parameters of observed variables are shown in Tables 2 and 3, and a path analysis is drawn as Figure 2.

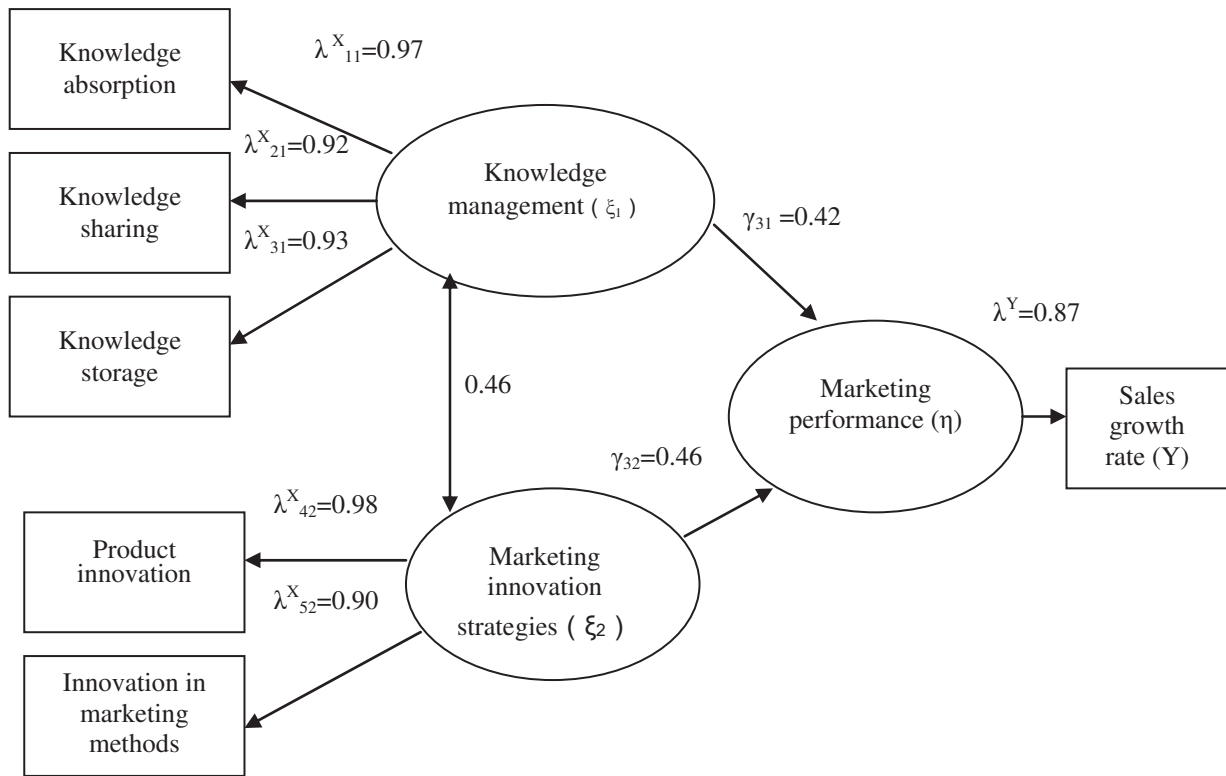


Fig. 2. SEM path analysis results (standardized)

Based on the above results, the following conclusions can be reached:

- ◆ The knowledge management adopted by Lung Yen Life Services has significant positive influence on marketing performance; the standardized estimation parameter value being 0.42, Hypothesis 1 is supported.
- ◆ The marketing innovation strategy adopted by Lung Yen Life Services has significant positive influence on marketing performance; the standardized estimation parameter value being 0.46, Hypothesis 2 is supported.
- ◆ The adopted by Lung Yen Life Services’s knowledge management and marketing innovation strategy show a correlation value of 0.46, showing that there is no multicollinearity between the two dimensions.

**Conclusions and recommendations**

The above analyses and investigations have resulted in the following conclusions and allowed for some recommendations.

**Conclusions.** 1. The knowledge management of Lung Yen Life Services has significant positive influence on marketing performance. This finding conforms to the conclusions of Pan’s (2001) study of the causes of product knowledge sharing among collaboration companies and its impact on performance in new product development, and Liao’s (2006) study of the relationships among

orientation toward education/training, storage of learning and knowledge, and the performance of sales personnel.

2. The marketing innovation strategy of Lung Yen Life Services has significant positive influence on marketing performance. This finding conforms to the conclusions of Huang’s (2002) study of the relationships between knowledge management, innovation strategy and organizational performance, and Yang’s (2007) study of the relationships between market-orientedness, orientation toward business creation, product innovation and organizational performance.

**Managerial implications.** 1. In terms of theoretic contribution: Most of the literature on similar subjects used the method of multiple regression analysis, but in this study, in consideration of the fact that the main dimensions consist of hidden variables, the conventional regression method would not fit, and the linear structural model of confirmatory factor analysis is adopted as the structural model of the study and used as measure.

2. In terms of practical contribution: Although the empirical results of this study are somewhat similar to those of related studies conducted in the past, the latter tend to be exploratory in nature, whereas our study adopted confirmatory factor analysis. It can, therefore, not only be used for reference by researchers in the future, but also be of use to businesses in the sector that wish to enhance organizational performance.

**Recommendations.** Knowledge management is a new research subject, and constitutes an area of study worth exploring and with considerable perspective for development. The fact that knowledge management and marketing innovation strategy are both latent variables that cannot be measured by value means that research in this regard is subject to limitations, and our way of bypassing this problem consists of dividing these two variables into five explicit variables or sub-dimensions. “Knowledge management” is divided into knowledge absorption, knowledge sharing, knowledge storage, and “marketing innovation

strategy” into product innovation and marketing method innovation: the five sub-dimensions being used as the dimensions for measurement. The empirical results of the study show that knowledge management and marketing innovation strategy both have positive influence on marketing performance. Furthermore, the study uses sales growth rate as a measurement index, illustrating the possibility to change the way performance is measured, for example, by adding financial performance indexes (ROE or ROA). In this way, the content of this area of research can be further enriched.

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