

# **THE CONSTRUCT VALIDATION OF ORGANIZATIONAL PERFORMANCE RESULTS: APPLICATION OF THE BALDRIGE CRITERIA IN SCIENCE AND TECHNOLOGY UNIVERSITY IN THAILAND**

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## EDUCATION IMPORTANCE OF THE STUDY

- Over the last decade, higher education institutions in Thailand have increasingly held accountability for measurable outputs and outcomes.
- Consequently, most of the higher education institutions in Thailand have to pay attention on organizational performance results and emphasize on process and indicators of organizational performance.

## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- Although the Baldrige criteria and framework have been widely accepted as a means of self-assessment to enhance performance of business and health organizations
- There has been limited concrete theoretical and empirical evidence for their validity when applied in higher-education institutions.

## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- Since its inception in 1987, the Baldrige criteria have evolved from measurement of organizational quality to a guideline for business companies moving toward performance excellence.
- Most importantly, the Baldrige criteria provide a comprehensive framework or tool for self-assessment and help organizations develop a common language and philosophy concerning quality.

# EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- World wide, there are also other national programs based upon Baldrige or similar criteria, such as:
  - Excellence Canada,
  - EFQM in Europe, European Quality Award (EQA),
  - the Japan Quality Award (JQA),
  - Australian Business Excellence Award (ABEA),
  - Singapore Quality Award (SQA),
  - Thailand Quality Award (TQA), Public Sector Management Quality Award (PMQA) in Thailand, Education Criteria for Performance Excellence (EdPEX) in Thailand, and others.

## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- Literature survey showed two major applications of Baldrige in higher education institutions namely, the organizational effectiveness and the relationship between learning and the curriculum.
- The core concepts embodied in the Baldrige criteria consists of seven key dimensions that explain what processes, procedures, and outcomes are associated with a quality organization.

# EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- They are;
  - (1) leadership,
  - (2) strategic development,
  - (3) measurement, analysis, and knowledge management,
  - (4) faculty and staff focus,
  - (5) process management,
  - (6) student, stakeholder, and market focus and satisfaction, and
  - (7) organizational performance results; among which quality leadership has been pointed out to be the most important key driver in the Baldrige criteria

## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- The framework of the Baldrige national quality program: education criteria for performance excellence (2014) consists of four basic elements namely, driver, system, measures of progress, and goals.



## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- However, the concept and the theoretical framework about Baldrige criteria especially the organizational performance results were originally proposed by U.S. academia, in which the economic, social, political, and cultural contexts are different from Asia-Pacific countries.

## EDUCATION IMPORTANCE OF THE STUDY (CONT.)

- Hence, the purposes of the present study was to examine the construct validity of the organizational performance model, as measured by Baldrige criteria, in the context of Thai higher education.

# OBJECTIVES

- The main objective of the present work was to assess the construct validity of the organizational performance model, as measured by Baldrige criteria, when applied in a science and technology university in Thailand

## POPULATION AND SAMPLES

- The target population of the present work was in a public autonomous university in Thailand, for which the samples were stratified randomly to reflect the population.
- The surveys were brought directly to 84 administrators, 145 faculties, and 119 supporting staffs.

## POPULATION AND SAMPLES (CONT.)

- Out of the total of 348 questionnaires distributed, 190 were received, representing a response rate of 54.60 %.
- Of the 190 respondents, 98 (51.58%) were females and 91 (47.89%) males;

## POPULATION AND SAMPLES (CONT.)

- 86 (45.26%) with doctorate degree, 62 (32.63%) with master's degree, and 42 (22.11 %) with bachelor's degree;
- 94 (49.47%) working at the university for 11-15 years, 52 (27.37%) for 5-10 years, 29 (15.26%) for more than 15 years, and 14 (7.37%) for less than 5 years.

## POPULATION AND SAMPLES (CONT.)

- The response rate is considered to be acceptable, compared with those of the previous studies on organization effectiveness in higher educations

# INSTRUMENT AND VARIABLES

The organizational performance results measured by six indicators namely:

- (1) student learning results,
- (2) customer focused results,
- (3) budgetary, financial, and market results,
- (4) workforce-focused results,
- (5) process effectiveness results, and
- (6) leadership and governance results.



## INSTRUMENT AND VARIABLES (CONT.)

- To investigate, the standard Baldrige criteria questionnaire was adopted, with some modifications to comply with the context of Thai higher education.
- The levels of practice of organizational performance in the Baldrige criteria application guidelines were measured through 14 items, rated using a 6-point Likert scale.

## INSTRUMENT AND VARIABLES (CONT.)

- They were in the range of 1 to 6; with
  - “1” indicating “very poor” response,
  - “2” indicating “poor” response,
  - “3” indicating “fair” response,
  - “4” indicating “good” response,
  - “5” indicating “very good” response, and
  - “6” indicating “excellent level perception” response.

## INSTRUMENT AND VARIABLES (CONT.)

- To assess the internal consistency and reliability, the Cronbach's alpha ( $\alpha$ ) was employed. The Cronbach's alpha for all indicators were analyzed.
- The reliability alpha values for the six indicators ranged from 0.751 to 0.851, exceeding guidelines for adequate reliability (Nunnally, 1967; George & Mallery, 2003).

## INSTRUMENT AND VARIABLES (CONT.)

- The reliability alpha confirmed that the scales can be used with confidence to measure the staffs' perception of organizational performance results excellence.

# DATA ANALYSIS

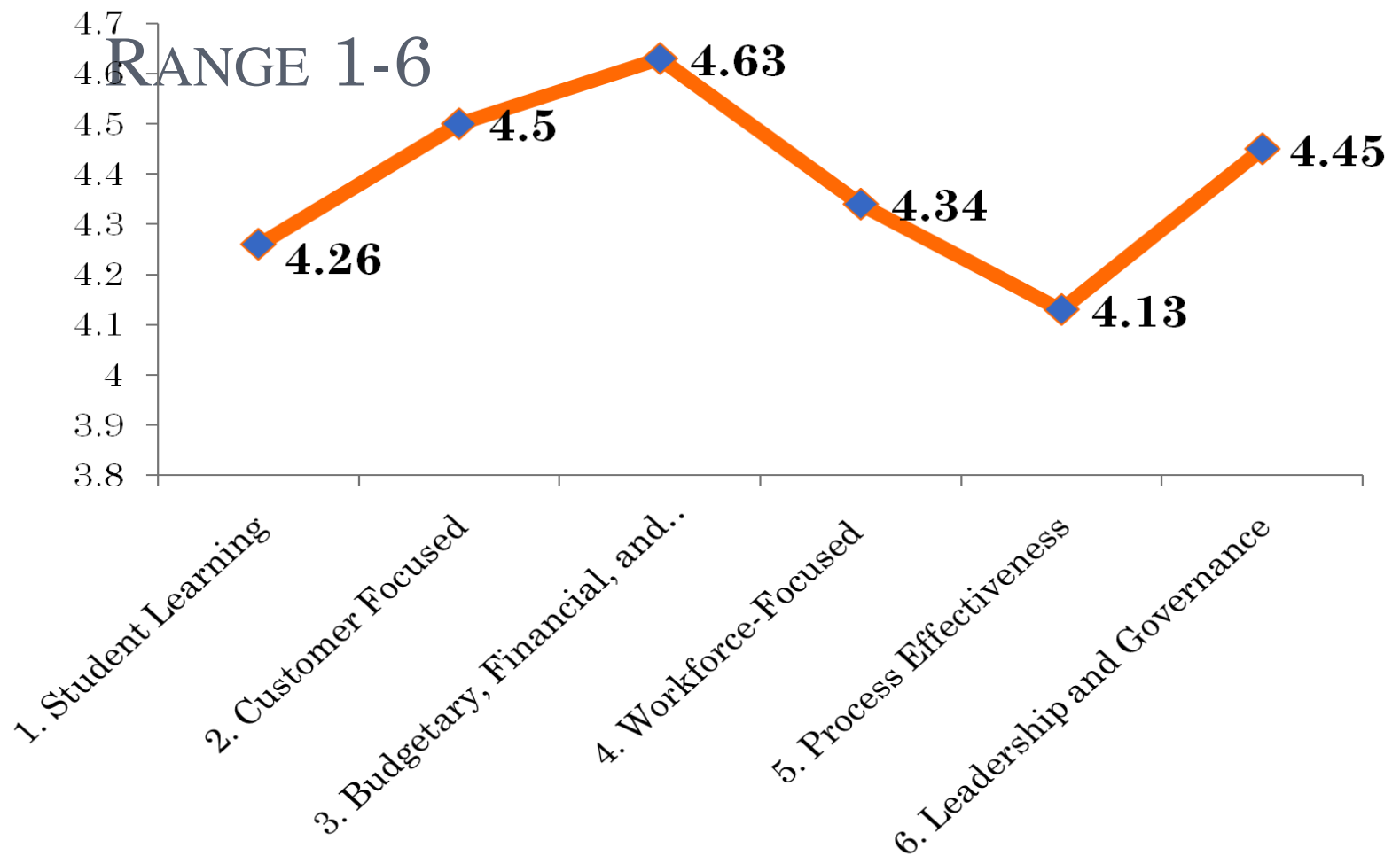
Two parts of data analysis were made;

- The first part focused on descriptive statistics
- The second part concerned with the testing of the confirmatory factor analysis (CFA).

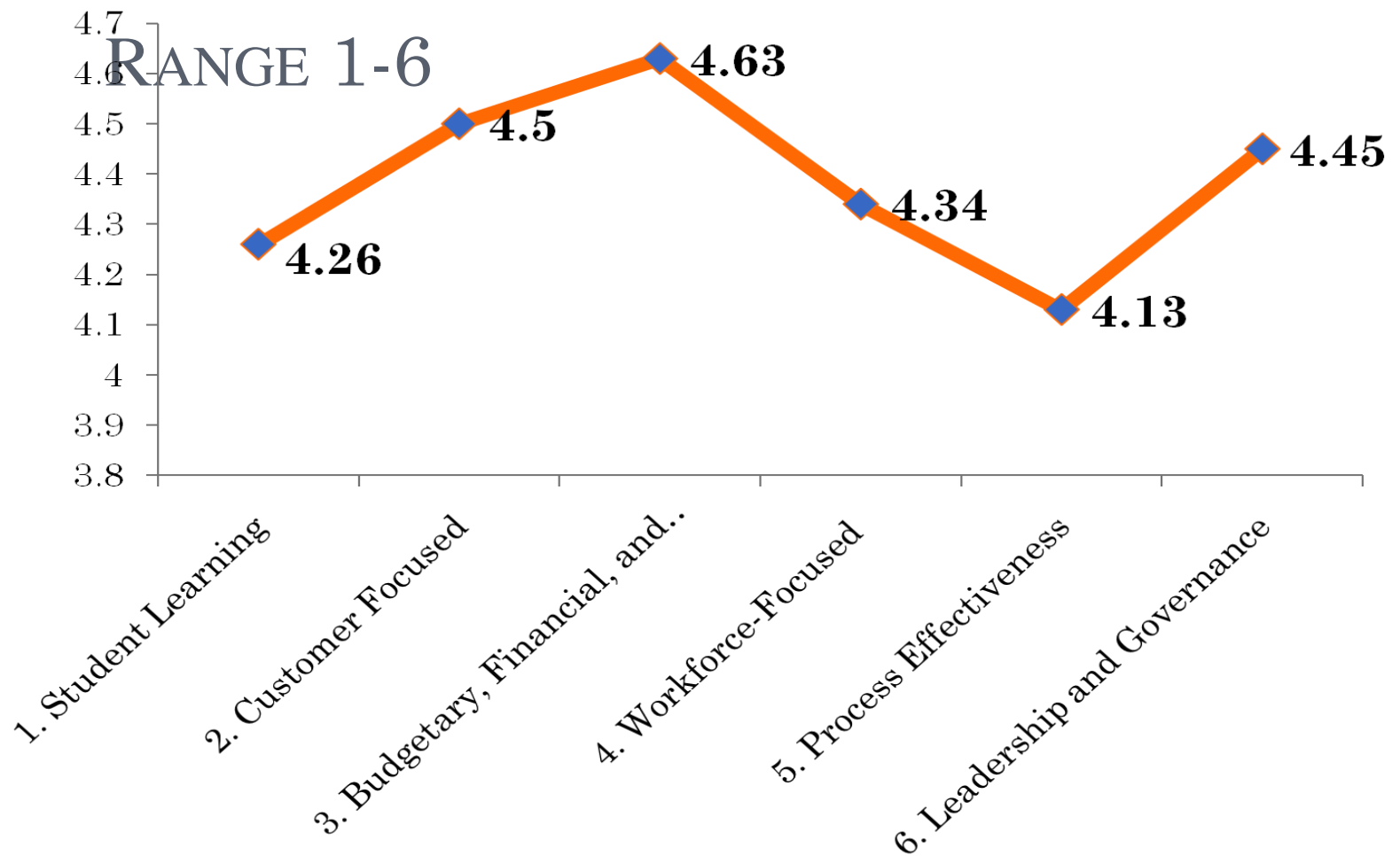
# RESULTS

## DESCRIPTIVE STATISTICS

- The descriptive statistics (mean, standard deviation) and matrix correlation among six indicators of organizational performance results construct will be discuss as follows.



According to the statistical analyses of the responses, participants satisfaction level seems to be high only for **budgetary, financial, and market results** ( $M = 4.63$ ,  $SD = 0.75$ ) and **customer focused results** ( $M = 4.50$ ,  $SD = 0.59$ ),



whereas those for leadership and governance results ( $M = 4.45$ ,  $SD = 0.81$ ), student learning results ( $M = 4.26$ ,  $SD = 0.79$ ), workforce-focused results ( $M = 4.34$ ,  $SD = 0.88$ ), and process effectiveness results ( $M = 4.13$ ,  $SD = 0.94$ ) are moderate.



Indicators	Matrix Correlation					
	1.	2.	3.	4.	5.	6.
1. Student Learning Results	1.000					
2. Customer Focused Results	.563**	1.000				
3. Budgetary, Financial, and Market Results	.281**	.429**	1.000			
4. Workforce-Focused Results	.411**	.507**	.456**	1.000		
5. Process Effectiveness Results	.345**	.333**	.287**	.565**	1.000	
6. Leadership and Governance Results	.401**	.474**	.562**	.638**	.628**	1.000

The matrix of correlation coefficients for the **six indicators**, designed to measure organizational performance results construct of Malcolm Baldrige criteria, are listed in Table.

Indicators	Matrix					
	1.	2.	3.	4.	5.	6.
1. Student Learning Results	1.000					
2. Customer Focused Results	.563**	1.000				
3. Budgetary, Financial, and Market Results	.281**	.429**	1.000			
4. Workforce-Focused Results	.411**	.507**	.456**	1.000		
5. Process Effectiveness Results	.345**	.333**	.287**	.565**	1.000	
6. Leadership and Governance Results	.401**	.474**	.562**	.638**	.628**	1.000

It appeared that, the correlation between all indicators are statistically significant at .01 level ( $p < .01$ ) and positively related, with the values of the correlation coefficients ranging from poor (.281) to high (.638).

Indicators	M					
	1.	2.				
1. Student Learning Results	1.000					
2. Customer Focused Results	.563**	1.000				
3. Budgetary, Financial, and Market Results	.281**	.429**				
4. Workforce-Focused Results	.411**	.507**	.456**	1.000		
5. Process Effectiveness Results	.345**	.333**	.287**	.565**	1.000	
6. Leadership and Governance Results	.401**	.474**	.562**	.638**	.628**	1.000

## *CONFIRMATORY FACTOR ANALYSIS (CFA)*

- A CFA was performed to examine the responses to the organizational result factor and 4 indicators.
- Mplus 6.12 statistical package was employed in statistical analyses and the evaluations of the goodness-of-fit of the proposed model.

## *CFA (CONT.)*

***Model Fitting:*** To test the validation of the proposed model with the empirical data, various fit indices were employed, *e.g.*

- the maximum-likelihood (ML) method
- chi-square goodness of fit ( $\chi^2$ )
- Ratio of  $\chi^2$  divided by degrees of freedom
- Comparative fit index (CFI)
- the Tucker-Lewis index (TLI)
- the root mean square error of approximation (RMSEA)
- and the standardized root mean squared residual (SRMR).

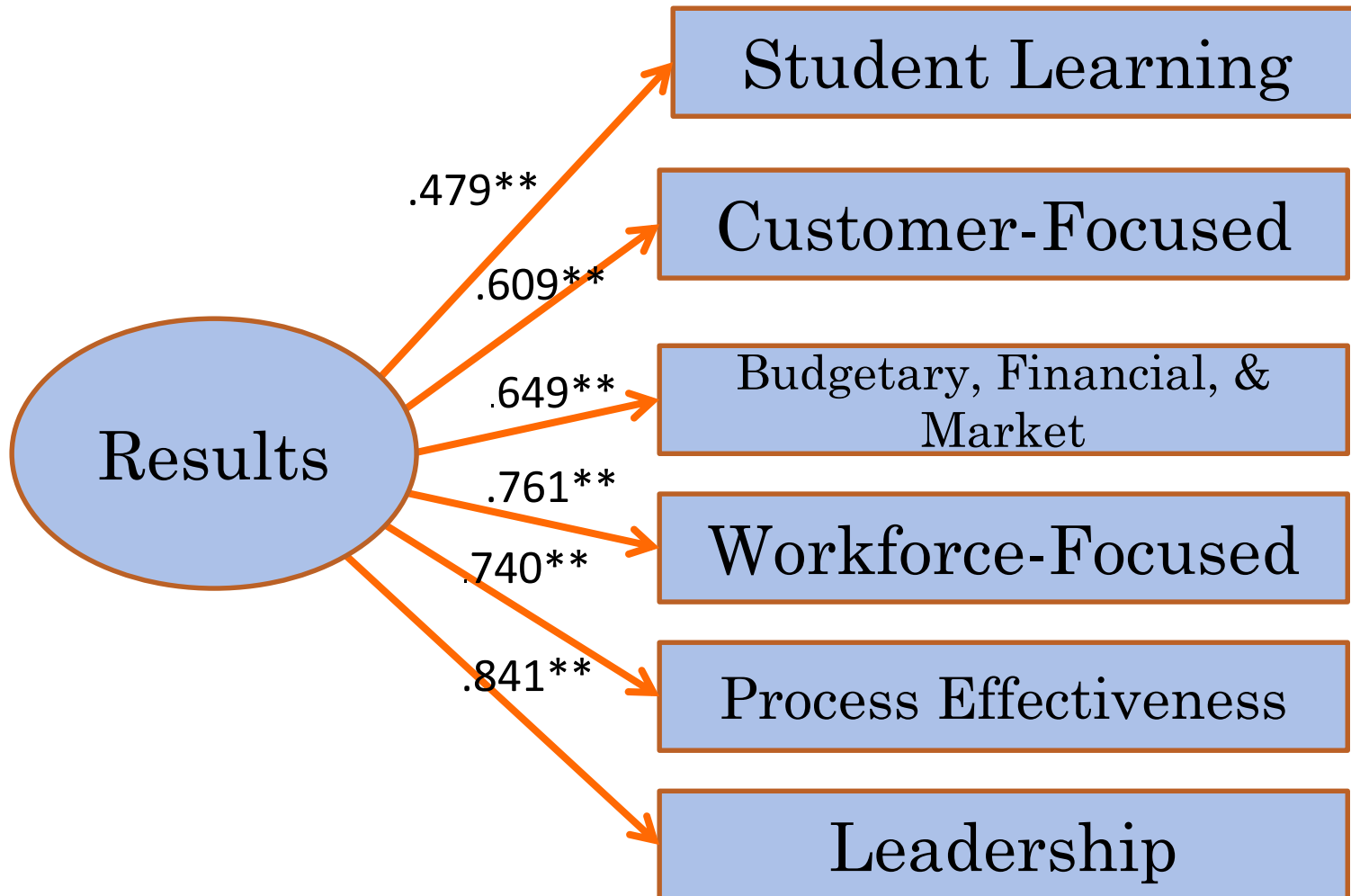
## *CFA (CONT.)*

- The overall goodness-of-fit of the model, measured by the ratio of chi-square per degree of freedom, suggested that **the proposed model fits the data well.**

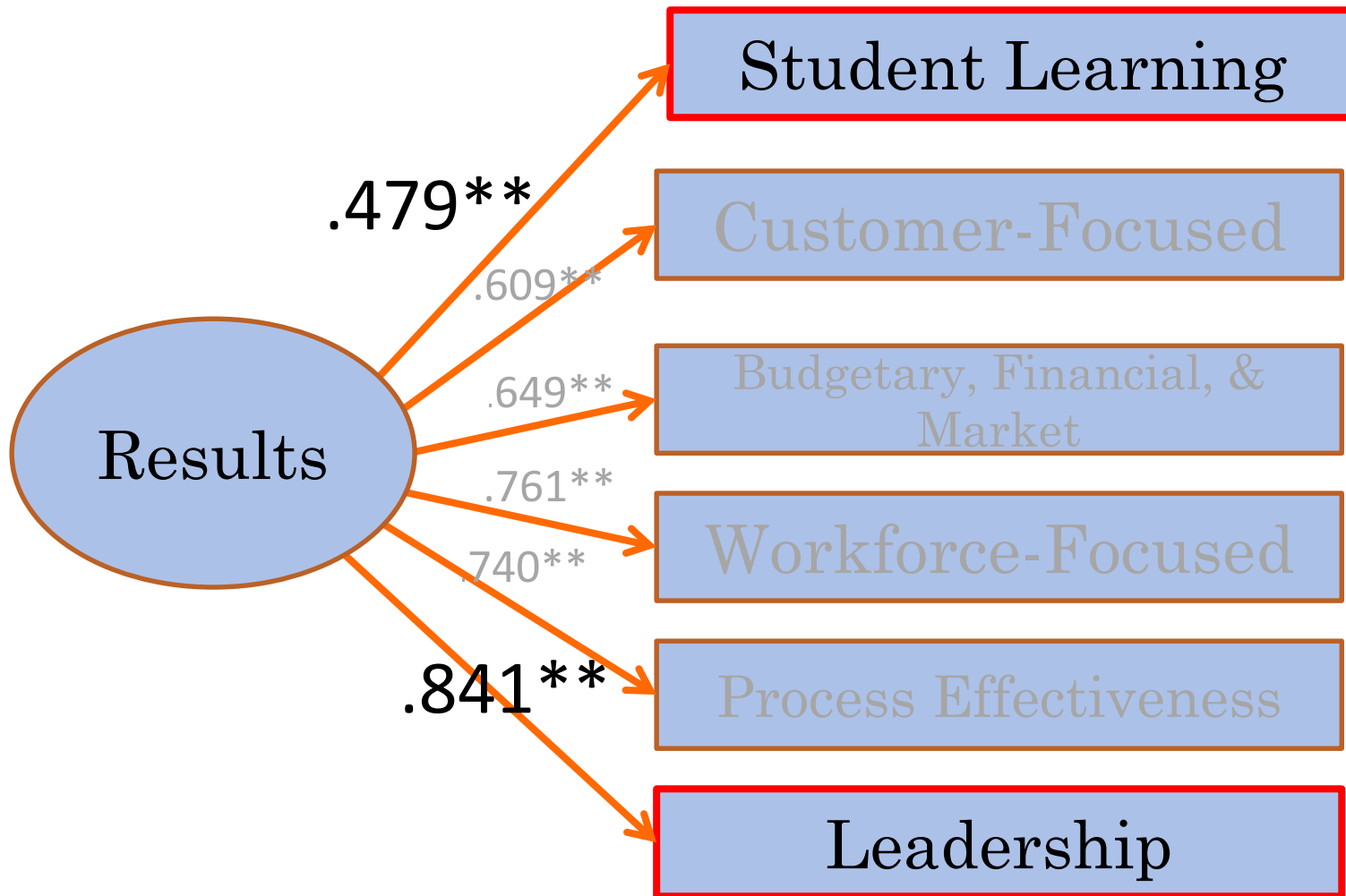
$\chi^2 = 7.076$ ,  $df = 6$ ,  $p = .3136$ ;  $\chi^2 / df = 1.179$ ; CFI = 0.998, TLI = 0.994; RMSEA = 0.031, SRMR = 0.019.

- The parameter estimates indicate that the six indicators contribute significantly to the measurement of organizational performance results construct.

As seen in Figure, The **standardized factor loadings vary in a quite wide range** (= 0.479 to 0.841).

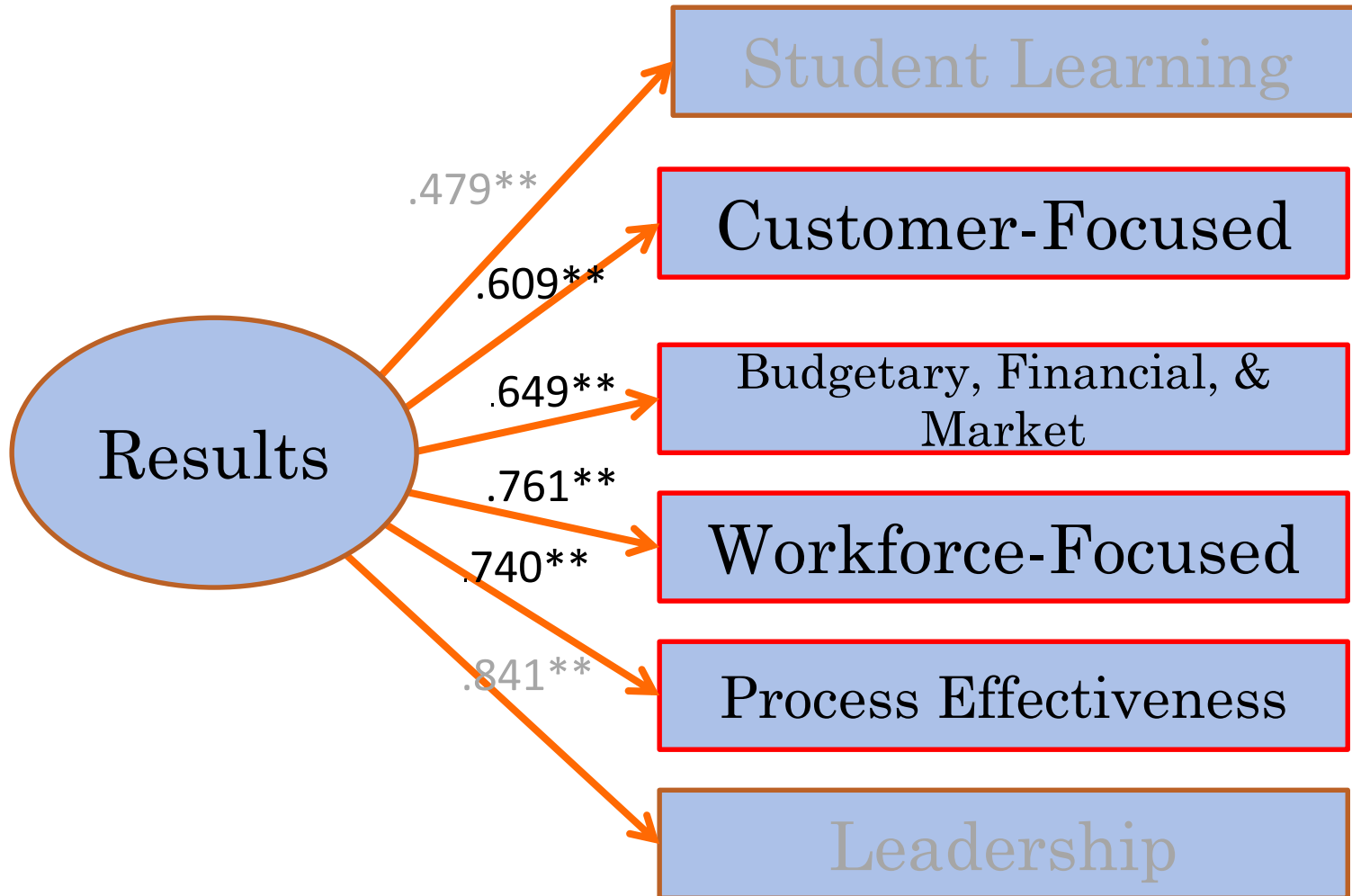


However, only the indicators for **leadership and governance results** (= 0.841) is highest, and **student learning results** (= 0.479) is lowest.





The indicators for **process effectiveness results** (= 0.740); **workforce focused results** (= 0.761); **budgetary, financial, and market results** (= 0.649); and **customer focused results** (= 0.609) are moderate.



- The square multiple correlation values ( $R^2$ ) show **the reliability of the measurements**, these factors could, therefore, explain the competencies of graduates from 23.00% to 70.70% of the total variance ( $R^2$  ranging from 0.230 to 0.707), and **support the hypothesis that the organizational performance results scale has a global factor composed of these six indicators.**

- Since the factor loadings are relatively moderate and high, the corresponding errors of the measurements associated with each indicator are naturally small.
- The errors associated with each indicator are ranging from 0.293 to 0.770.
- These confirm again that the six indicators define the organizational performance results construct very well.

## CONCLUSION

- Attempt has been made in the present work to develop a systematic method for assess the construct validity of the organizational performance model from a science and technology university in Thailand, using descriptive statistics and a confirmatory factor analysis.

## CONCLUSION (CONT.)

- Descriptive statistical analyses showed that administrator, faculty, and supporting staff satisfaction is the highest for Budgetary, Financial, and Market Results, and Customer Focused Results; whereas those for Leadership and Governance Results, Workforce-Focused Results, Student Learning Results, and Process Effectiveness Results are moderate.

## CONCLUSION (CONT.)

- The statistical results obtained from the confirmatory factor analysis confirmed that all the six indicators proposed by MBNQA for the proposed model contribute significantly to the Organizational Performance Results.

## CONCLUSION (CONT.)

- Empirical evidence revealed that quality management especially leadership and governance results, process effectiveness results, and workforce-focused results have relationship with organizational performance.
- Leadership and governance are the most important indicators for achieving higher educational performance excellence. Leaders has to guide every system, strategy, and process for achieving academic excellence of the higher education institutions.

## CONCLUSION (CONT.)

- Since the analyses in the present work were made based on the information obtained directly from the administrator, faculty, and supporting staff, the author believed that the results could be beneficial in the development organizational quality management, as well as has important contributions and implications for practitioners and policy-makers in Thai and Asia-Pacific higher education institutions.



**THANK YOU FOR YOUR  
ATTENTION**

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