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A 1-DAY WORKSHOP ON STRUCTURAL EQUATION MODELING (SEM) FOR SMALL SAMPLE & NON-NORMAL DATA

Using Partial Least Squares (PLS) Method

Presenter: Prof. Dr. Mokhtar Abdullah (Ph.D, Statistics)
Asst. Vice-Chancellor (R&I), Universiti Pertahanan Nasional Malaysia

SYNOPSIS

This workshop is about the use of Structural Equation Modeling (SEM) when ordinary assumptions such as multivariate normality and large sample size are not met. These situations would require the use of a special method for SEM, namely, **Partial Least Squares (PLS)** method. In this workshop we will demonstrate how to use a sophisticated statistical software *SmartPLS* for assessing the SEM models. This workshop will engage SEM researchers in 'hands-on' activities relating to the use of *SmartPLS* to assess the SEM. As opposed to covariance-based SEM approaches (exemplified by software such as AMOS, LISREL or EQS) which require normality assumption and sufficiently large data, the PLS method has been shown to have less restrictive requirements for sample size, missing data and data distribution characteristics (e.g. normality, skewness, kurtosis, etc.).

*A Monte Carlo simulation performed by *Chin and Newsted (1999) indicated that PLS can be performed with a sample size as low as 50. For covariance-based SEM (using AMOS), many researchers even recommend a minimum sample size of 200 to avoid 'improper' solutions.*

Participants are required to bring along laptops and to download and install the (currently free) *SmartPLS* software, and sample data sets, prior to the workshop. Then, in the workshop, participants will be instructed on how to use *SmartPLS* in 'live' PLS-based SEM modeling exercises.

*Chin, W. W., & Newsted, P. R. (1999). Structural equation modelling analysis with small samples using partial least squares. In R. H. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 307-341). Thousand Oaks, CA: Sage.

CONTENT

Part I. Introduction to SEM with Latent Constructs

- Why Use PLS Path Modeling?
- PLS vs. LISREL or Covariance-Based SEM (CBSEM)
- Practical Aspects of PLS

Part II. 'Hands On' Session with SmartPLS

- Step-by-step Workout Using SmartPLS
- Exercises with SEM data

Part III. Assessment of the Measurement & Structural Models

- Reliability & Validity of Measurement & Structural Models
 - ❖ Composite Reliability
 - ❖ Convergent Validity
 - ❖ Discriminant Validity
- Bootstrapping

Part IV. Mediating & Moderating Effects

- Mediating and Moderating Effects in SEM
- Analysing Mediating and Moderating Effects using SmartPLS

Who Should Attend?

- This workshop will primarily benefit
- SEM researchers who are new to the PLS based approach and to *SmartPLS* software.
 - Experienced SEM researchers who use existing covariance-based approaches and tools (e.g. AMOS, LISREL, etc.).
 - All researchers who are not familiar with SEM but keen to use PLS based SEM.
 - All postgraduate (MBA, Ph.D etc) students in the fields of Business & Management, Social Sciences, Technology, Hospitality & Service