RESEARCH METHODS WORKSHOP

International Marketing Trends Conference

Importance and Performance meets necessary conditions: How to gain more from your PLS-SEM analysis

Date | *Place*

1 Background on the combined use of PLS-SEM and the NCA

This research methods workshop introduces participants to partial least squares structural equation modeling (PLS-SEM) and necessary condition analysis (NCA), two complementary quantitative methods that offer a robust framework for theory testing and empirical analysis. PLS-SEM, is a popular regression-based technique used to estimate complex models with latent variables while accounting for measurement error. Since the early 2000s, PLS-SEM has gained widespread adoption across disciplines such as (international) marketing and management research. Operating within a sufficiency logic, PLS-SEM helps empirically identify determinants (X) that increase or lead to an outcome (Y), which is crucial for deriving actionable managerial recommendations.

In contrast, NCA adopts a necessity logic, aiming to identify conditions that must be present for an outcome to occur—expressed as "X is necessary for Y." Necessary conditions act as bottlenecks or critical constraints such that the absence of these factors guarantees failure. This logic complements the sufficiency perspective of PLS-SEM and has gained notable academic traction due to its practical relevance.

The combined application of PLS-SEM and NCA, particularly via the importance-performance map analysis (IPMA), enables researchers to distinguish between "should-have" factors that enhance outcomes (sufficiency) and "must-have" factors that are indispensable prerequisites (necessity).

2 Workshop objectives and learning outcomes

This workshop will explore the concepts of sufficiency and necessity logic and the foundational principles behind the combined use of PLS-SEM and NCA. Participants will develop a solid understanding of PLS-SEM's IPMA, NCA, and how these methods can be integrated effectively in the combined importance-performance map analysis (cIPMA). Using a case study, we will demonstrate the application of these techniques with the SmartPLS 4 software.

Specifically, participants will gain knowledge in the following areas:

- Foundations of PLS-SEM and the importance-performance map analysis (IPMA)
- Necessary condition analysis (NCA)
- Combines application of PLS-SEM's IPMA and NCA (cIPMA)
- Hands-on case study using SmartPLS including reporting and interpreting results

This workshop is designed for researchers seeking to incorporate advanced methodological approaches into their studies and publications. Participants should have had some exposure to SEM methods, preferably PLS.

3 Teaching and learning methods

- The workshop is based on these textbooks:
  - Dul, J. (2020). *Conducting Necessary Condition Analysis*. Thousand Oaks, CA: Sage.
  - Dul, J. (2021). *Advances in Necessary Condition Analysis, Version 0.1*. Online book retrieved from: https://bookdown.org/ncabook/advanced_nca2/.
  - Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 3rd edition. Thousand Oaks, CA: Sage.
  - Hair, J. F., Sarstedt, M., Ringle, C. M., and Gudergan, S. P. (2024). *Advanced Issues in Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 2nd edition. Thousand Oaks, CA: Sage.
- Presentations: The session will cover theory and its application.
- Computer exercises using the latest SmartPLS 4 software version.

4 Registration and teaching resources

- TBA
- *Comprehensive lecture slides will be provided to all participants*
- Bring your laptop computer and a 2 or 3-way power extension lead.
- Download and install the SmartPLS 4 software from https://www.smartpls.com/ before attending the workshop. Participants will receive further instructions and a two-month SmartPLS 4 software license key – shortly before the workshop starts.

5 Schedule

Location: TBA

Time	Topic
09:00 – 10:30	**Introduction to PLS-SEM, the IPMA, and the SmartPLS software**
10:30 – 10:45	*Break*
10:45 – 12:30	**The combined use of PLS-SEM and NCA with practical application using a case study and the SmartPLS software**

6 Instructor and a short bio

Christian M. Ringle is a Chaired Professor of Management and Decision Sciences at the Hamburg University of Technology (Germany), and an Adjunct Professor at the James Cook University (Australia). His research, which has been cited more than 300,000 times (Google Scholar), focuses on management and marketing topics, method development, business analytics, machine learning, and the application of business research methods to decision making. Christian's contributions have been published in journals such as *Industrial Marketing Management*, *International Journal of Research in Marketing*, *Information Systems Research*, *Journal of the Academy of Marketing Science*, *MIS Quarterly*, and *Organizational Research Methods*. Since 2018, Christian has been included in the Clarivate Analytics' Highly Researchers list. He is a co-founder and co-developer of SmartPLS (https://www.smartpls.com), a statistical software with a graphical user interface. More information: https://www.tuhh.de/mds/team/prof-dr-c-m-ringle.html

Marko Sarstedt is a chaired professor of marketing at the Ludwig-Maximilians-University Munich (Germany) and an adjunct research professor at Babeș-Bolyai-University Cluj-Napoca (Romania). His main research interest is the advancement of research methods to further the understanding of consumer behavior. His research has been published in *Nature Human Behavior*, *Journal of Marketing Research*, *Journal of the Academy of Marketing Science*, *Multivariate Behavioral Research*, *Organizational Research Methods*, *MIS Quarterly*, and *Psychometrika*, among others. Marko has been repeatedly named member of Clarivate Analytics' Highly Cited Researchers List, which includes the "world's most impactful scientific researchers." In March 2022, he was awarded an honorary doctorate from Babeș-Bolyai-University Cluj-Napoca for his research achievements and contributions to international exchange. More information: https://www.som.lmu.de/marketing/en/institute/contact-page/marko-sarstedt-dbe5e476.html

7 References

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