3-7 July 2017, from 9.00 to 16.00

Course title: **VARIANCE-BASED STRUCTURAL EQUATION MODELING: PARTIAL LEAST SQUARES & CO.**

ECTS credits: 6

Lecturer: Professor Jörg Henseler, University of Twente, Netherlands
Contact: j.henseler@utwente.nl

AIMS OF THE COURSE:

The course "Variance-based Structural Equation Modeling: Partial Least Squares & Co." consists of 13 lectures. The first three lectures provide the conceptual foundation for confirmatory factor analysis, confirmatory composite analysis, and structural equation modeling in general. The next four lectures cover the basics of variance-based structural equation modeling: Model specification, estimation, and interpretation. This includes a tutorial of the ADANCO software for variance-based structural equation modeling. The last six lectures present and discuss various extensions, such as second-order constructs, moderating effects, non-linear effects, multigroup analysis, mediating effects, and prediction-oriented research. The course will make ample references to extant literature. The following article provides a solid introduction and can be used as a sort of tutorial:

– Henseler, Jörg; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

COURSE SYLLABUS:

Preliminary Agenda

Monday
1 Behavioral Research and the Common Factor Model
2 Design Research and the Composite Model
3 Traditional and Consistent Partial Least Squares

Tuesday
4 The ADANCO Software Environment
5 Assessing the Model Fit*
6 Assessing the Measurement Model*

Wednesday
7 Assessing the Structural Model, Bootstrapping*
8 Modeling Second-order Constructs*
9 Analyzing Mediating Effects*

Thursday
10 Analyzing Moderating Effects*
11 Analyzing Non-linear Effects*

University *of Ljubljana*

FACULTY OF ECONOMICS

Kardeljeva ploščad 17
SI - 1000 Ljubljana, Slovenia
Tel.: +386 1 5892 400
Fax: +386 1 5892 698
info@ef.uni-lj.si
www.ef.uni-lj.si

Friday

12 Multi-group Analysis∗ and Measurement Invariance

13 Prediction-oriented Research∗

Every lecture takes approximately two contact hours. The breaks are usually a good opportunity for intellectual interchange between individual participants and the instructor. It is therefore recommendable to have sufficient breaks. Topics marked with an asterisk (∗) contain a software tutorial. Most lectures will point at challenging open research questions.

Brief Descriptions of Lecture Contents

Lecture 1: Behavioral Research and the Common Factor Model

Here I discuss a model in which not directly observable factors ('latent variables') are linked to each other in a set of linear equations, possibly with feedback. The factors are observed via (multiple) indicators. The model assumptions imply that the covariance matrix of the indicators satisfies functional constraints. I will discuss true score theory as the backbone of behavioral research and embed it in the positivist paradigm. This lecture can be understood as a sort of recap of structural equation modeling and confirmatory factor analysis.

Lecture 2: Design Research and the Composite Model

Design research follows a completely different paradigm: pragmatism. It also requires a different type of measurement model, namely the composite model. I discuss this relatively new type of measurement model and propose confirmatory composite analysis as its statistical workhorse. The following literature will be used:

− Henseler, Jörg (2015). Is the whole more than the sum of its parts? On the interplay of marketing and design research, Inaugural lecture, University of Twente. URL: http://purl.utwente.nl/publications/95770

− Henseler, Jörg (under review/invited paper, scheduled for publication in January 2017). Empirical advertising research at the interface of design and behavioral research. Journal of Advertising, manuscript available upon request.

− Henseler, Jörg; Dijkstra, Theo K.; Sarstedt, Marko; Ringle, Christian M.; Diamantopoulos, Adamantios; Straub, Detmar W.; Ketchen, David J., Jr.; Hair, Joseph F.; Hult, G. Tomas M.; Calantone, Roger J. (2014). Common beliefs and reality about PLS: Comments on R̈onkk̈o & Evermann (2013).Organizational Research Methods, 17 (2), 182-209. URL: http://dx.doi.org/10.1177/1094428114526928

Lecture 3: Traditional and Consistent Partial Least Squares

Among all variance-based structural equation modeling techniques, partial least squares (PLS) path modeling is the most developed one. The PLS algorithm constructs composites, linear combinations of indicators, that take the place of the constructs in the equations of the model. The structural parameters and the loadings are estimated treating the constructs as observed. The weights of the indicators in the composites are the outcome of alternating least squares algorithms that extend principal components and canonical variables. Composites cannot replace unobservable factors without error, so the estimated relationships between the former give inevitably a distorted image of the relationships between the latter. I discuss the direction and the size of the distortions (the difference between the true values and the values obtained when the method is applied to the population). Moreover, I will present a simple alternative that corrects the distortions: consistent PLS (PLSc). The following literature will be used:

  – Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. Computational Statistics & Data Analysis, 81 (1), 10-23. URL: http://dx.doi.org/10.1016/j.csda.2014.07.008

  – Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent partial least squares path modeling. MIS Quarterly, 39 (2), 297-316. URL: http://www.henseler.com/Dijkstra-Henseler-MISQ-2015.pdf

  – Henseler, J¨org (2010). On the convergence of the partial least squares path modeling algorithm. Computational Statistics, 25 (1), 107-120. URL: http://dx.doi.org/10.1007/s00180-009-0164-x

Lecture 4: The ADANCO Software Environment

ADANCO is a novel software for variance-based structural equation modelling which has implemented the newest developments in the field of PLS. Although this software is relatively easy to use, there are some aspects that are worth knowing. We will go through all important steps of a structural equation modelling analysis: Importing and treating the data, specifying the model, selecting algorithmic options, estimating parameters, and extracting results.

Lecture 5: Assessing Model Fit

The assessment of model fit is at the core of structural equation modeling. Surprisingly, it is only recently (two years ago) that real measures of goodness-of-fit have been proposed for PLS. In this lecture, I will show the available fit statistics, mainly the SRMR and a bootstrap-based test of exact fit. I will also illustrate early suggestions for goodness-of-fit measures and discuss why they failed. The following literature will be used:

  – Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. Computational Statistics & Data Analysis, 81 (1), 10-23. URL: http://dx.doi.org/10.1016/j.csda.2014.07.008

  – Henseler, J¨org; Dijkstra, Theo K.; Sarstedt, Marko; Ringle, Christian M.; Diamantopoulos, Adamantios; Straub, Detmar W.; Ketchen, David J., Jr.; Hair, Joseph F.; Hult, G. Tomas M.; Calantone, Roger J. (2014). Common beliefs and reality about PLS: Comments on R¨onkk¨o & Evermann (2013). Organizational Research Methods, 17 (2), 182-209. URL: http://dx.doi.org/10.1177/1094428114526928

  – Henseler, J¨org; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

  – Henseler, J¨org; Sarstedt, Marko (2013). Goodness-of-fit indices for partial least squares path modeling. Computational Statistics, 28 (2), 565-580. URL: http://dx.doi.org/10.1007/s00180-012-0317-1

Lecture 6: Assessing the Measurement Model

Valid and reliable construct measurement is a pre-condition for a meaningful interpretation of model results. In this lecture, we will cover the various ways how to assess the reliability and validity of factor models as well as the external validity of composite models. We treat established criteria such as Cronbach's alpha, factor reliability, and average variance extracted as well as new criteria such as Dijkstra-Henseler's rhoA and the heterotrait-monotrait ratio of correlations (HTMT). The following literature will be used:

– Henseler, Jörg; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

– Henseler, Jörg; Ringle, Christian M.; Sarstedt, Marko (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43 (1), 115-135. URL: http://dx.doi.org/10.1007/s11747-014-0403-8

Lecture 7: Assessing the Structural Model

The structural model output is typically the most important result of the analysis. In this lecture we show which output is available and how it should be interpreted. This lecture also covers inference statistics by means of the bootstrap. The following literature will be used:

– Henseler, Jörg; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

Lecture 8: Modeling Second-order Constructs

Second-order constructs are one of the most popular extensions of PLS path modeling. They are a technical answer to the quest for a higher level of abstraction. In this lecture, we will present the various forms of second-order constructs, and we provide the theoretical and technical underpinning to model them. The following literature will be used:

– Riel, Allard van; Henseler, J¨org; K´em´eny, Ildik´o; Sasova, Zuzana (2017). Estimating hierarchical constructs using partial least squares: The case of second-order composites of factors. Industrial Management & Data Systems, 117 (1), manuscript available upon request.

– Ringle, Christian M.; Sarstedt, Marko; Straub, Detmar (2012). A critical look at the use of PLS-SEM in MIS Quarterly. MIS Quarterly, 36 (1), iiixiv. URL: http://misq.org/skin/frontend/default/misq/pdf/V36I1/EdCommentsV36N1.pdf

Lecture 9: Analyzing Mediating Effects

In more complex models, there are not only direct effects between constructs, but also indirect and total effects. In particular, direct, indirect, and total effects can vary in size, sign, and significance. To facilitate interpretation, we will distinguish between various forms of mediation: full mediation, complementary mediation, competitive mediation, and no mediation. The following literature will be used:

– Nitzl, Christian; Rold´an, Jos´e Luis; Cepeda, Gabriel (2016). Mediation analyses in partial least squares structural equation modeling: Helping researchers discuss more sophisticated models. Industrial Management & Data Systems, 116 (9), 1849-1864. URL: http://dx.doi.org/10.1108/IMDS-07-2015-0302

– Zhao, Xinshu; Lynch, John G.; Chen, Qimei (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. Journal of Consumer Research, 37 (2), 197-206. URL: http://dx.doi.org/10.1086/651257

Lecture 10: Analyzing Moderating Effects

It is an important finding in many scientific disciplines that hypothesized effects do not have universally the same strength, but they depend on the circumstances – which is the focus of the so-

University *of Ljubljana*

FACULTY OF
ECONOMICS

Kardeljeva ploščad 17
SI - 1000 Ljubljana, Slovenia
Tel.: +386 1 5892 400
Fax: +386 1 5892 698
info@ef.uni-lj.si
www.ef.uni-lj.si

called contingency theory. This observed heterogeneity can be analyzed by means of moderating effects. In this lecture, we will present the various approaches to model, analyze, and interpret moderating effects, such as the two-stage approach and the orthogonalizing approach. The following literature will be used:

- Fassott, Georg; Henseler, J¨org; Coelho, Pedro Sim˜os (2016). Testing moderating effects in PLS path models with composite variables. Industrial Management & Data Systems, 116 (9), 1887-1900. URL: http://dx.doi.org/10.1108/IMDS-06-2016-0248

- Henseler, Jörg; Chin, Wynne W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. Structural Equation Modeling, 17 (1), 82-109. URL: http://dx.doi.org/10.1080/10705510903439003

- Henseler, Jörg; Fassott, Georg (2010). Testing moderating effects in PLS path models: an illustration of available procedures. In: Esposito Vinzi, Vincenzo; Chin, Wynne W.; Henseler, J Jörg; Wang, Huiwen (Eds.). Handbook of Partial Least Squares: Concepts, Methods and Applications. Heidelberg, Dordrecht, London, New York: Springer, pp. 713-735. URL: http://dx.doi.org/10.1007/978-3-540-32827-8_31

Lecture 11: Analyzing Non-linear Effects

Many effects in business and social science have been found to be non-linear In order to model phenomena such as saturation, growth, or decline, it is indispensable to examine non-linear effects. In this lecture, we will show how the two-stage approach can be used to model, analyze, and interpret non-linear effects. The following literature will be used:

- Dijkstra, Theo K.; Henseler, J¨org (2011). Linear indices in nonlinear structural equation models: best fitting proper indices and other composites. Quality & Quantity, 45 (6), 1505-1518. URL: http://dx.doi.org/10.1007/s11135-010-9359-z

- Henseler, Jörg; Fassott, Georg; Dijkstra, Theo K.; Wilson, Bradley (2012). Analysing quadratic effects of formative constructs by means of variancebased structural equation modelling. European Journal of Information Systems, 21 (1), 99-112. URL: http://dx.doi.org/10.1057/ejis.2011.36

Lecture 12: Multi-group Analysis

Moderating effects of categorical moderator variables can best be analyzed by means of multi-group analysis. In this lecture, we show how to perform multigroup analysis. In order to avoid interpretational confounding, one can use the MICOM approach, which assesses the measurement invariance of composites. The following literature will be used:

- Henseler, Jörg (2012). PLS-MGA: A non-parametric approach to partial least squares-based multi-group analysis. In: Gaul, Wolfgang A.; GeyerSchulz, Andreas; Schmidt-Thieme, Lars; Kunze, Jonas (Eds.). Studies in Classification, Data Analysis, and Knowledge Organization: Challenges at the Interface of Data Analysis, Computer Science, and Optimization. Berlin, Heidelberg: Springer, pp. 495-501. URL: http://dx.doi.org/10.1007/978-3-642-24466-7_50

- Henseler, Jörg; Ringle, Christian M.; Sarstedt, Marko (2016). Testing measurement invariance of composites using partial least squares. International Marketing Review, 33 (3), 1-27. URL: http://dx.doi.org/10.1108/IMR-09-2014-0304

University *of Ljubljana*

FACULTY OF
ECONOMICS

Kardeljeva ploščad 17
SI - 1000 Ljubljana, Slovenia
Tel.: +386 1 5892 400
Fax: +386 1 5892 698
info@ef.uni-lj.si
www.ef.uni-lj.si

- Sarstedt, Marko; Henseler, J¨org; Ringle, Christian M. (2011). Multi-group analysis in partial least squares (PLS) path modeling: Alternative methods and empirical results. Advances in International Marketing, 22, 195-218. URL: http://dx.doi.org/10.1108/S1474-7979(2011)0000022012

Lecture 13: Prediction-oriented Research

While the previous lectures mainly focused on using variance-based SEM for confirmatory research, this lecture discusses how the method can be useful for prediction-oriented research. In this lecture, we show how the predictive validity of models can be assessed by means of holdout samples as well as multiple samples. The following literature will be used:

- Cepeda Carri´on, Gabriel; Henseler, J¨org; Ringle, Christian M.; Rold´an, Jos´e Luis (2016). Prediction-oriented modeling in business research by means of PLS path modeling. Journal of Business Research, 69 (10), 4545-4551. URL: http://dx.doi.org/10.1016/j.jbusres.2016.03.048

- Lancelot-Miltgen, Caroline; Henseler, Jörg; Gelhard, Carsten; Popoviˇc, Aleˇs (2016). Introducing new products that affect consumer privacy: A mediation model. Journal of Business Research, 69 (10), 4659-4666. URL: http://dx.doi.org/10.1016/j.jbusres.2016.04.015

Software

Several of the lectures contain a software tutorial, in which course participants will learn how to conduct variance-based structural equation modeling using the software ADANCO. A trial edition of ADANCO 2.0 is available from the following website:

http://www.composite-modeling.com

LIST OF READINGS:

- Henseler, J¨org (2015). Is the whole more than the sum of its parts? On the interplay of marketing and design research, Inaugural lecture, University of Twente. URL: http://purl.utwente.nl/publications/95770

- Henseler, J¨org (under review/invited paper, scheduled for publication in January 2017). Empirical advertising research at the interface of design and behavioral research. Journal of Advertising, manuscript available upon request.

- Henseler, J¨org; Dijkstra, Theo K.; Sarstedt, Marko; Ringle, Christian M.; Diamantopoulos, Adamantios; Straub, Detmar W.; Ketchen, David J., Jr.; Hair, Joseph F.; Hult, G. Tomas M.; Calantone, Roger J. (2014). Common beliefs and reality about PLS: Comments on R¨onkk¨o & Evermann (2013).Organizational Research Methods, 17 (2), 182-209. URL: http://dx.doi.org/10.1177/1094428114526928

- Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. Computational Statistics & Data Analysis, 81 (1), 10-23. URL: http://dx.doi.org/10.1016/j.csda.2014.07.008

- Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent partial least squares path modeling. MIS Quarterly, 39 (2), 297-316. URL: http://www.henseler.com/Dijkstra-Henseler-MISQ-2015.pdf

– Henseler, J¨org (2010). On the convergence of the partial least squares path modeling algorithm. Computational Statistics, 25 (1), 107-120. URL: http://dx.doi.org/10.1007/s00180-009-0164-x

– Dijkstra, Theo K.; Henseler, J¨org (2015). Consistent and asymptotically normal PLS estimators for linear structural equations. Computational Statistics & Data Analysis, 81 (1), 10-23. URL: http://dx.doi.org/10.1016/j.csda.2014.07.008

– Henseler, J¨org; Dijkstra, Theo K.; Sarstedt, Marko; Ringle, Christian M.; Diamantopoulos, Adamantios; Straub, Detmar W.; Ketchen, David J., Jr.; Hair, Joseph F.; Hult, G. Tomas M.; Calantone, Roger J. (2014). Common beliefs and reality about PLS: Comments on R¨onkk¨o & Evermann (2013). Organizational Research Methods, 17 (2), 182-209. URL: http://dx.doi.org/10.1177/1094428114526928

– Henseler, J¨org; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

– Henseler, J¨org; Sarstedt, Marko (2013). Goodness-of-fit indices for partial least squares path modeling. Computational Statistics, 28 (2), 565-580. URL: http://dx.doi.org/10.1007/s00180-012-0317-1

– Henseler, J¨org; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

– Henseler, J¨org; Ringle, Christian M.; Sarstedt, Marko (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43 (1), 115-135. URL: http://dx.doi.org/10.1007/s11747-014-0403-8

– Henseler, J¨org; Hubona, Geoffrey; Ray, Pauline Ash (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116 (1), 2-20. URL: http://dx.doi.org/10.1108/IMDS-09-2015-0382

– Riel, Allard van; Henseler, J¨org; K´em´eny, Ildik´o; Sasova, Zuzana (2017). Estimating hierarchical constructs using partial least squares: The case of second-order composites of factors. Industrial Management & Data Systems, 117 (1), manuscript available upon request.

– Ringle, Christian M.; Sarstedt, Marko; Straub, Detmar (2012). A critical look at the use of PLS-SEM in MIS Quarterly. MIS Quarterly, 36 (1), iiixiv. URL: http://misq.org/skin/frontend/default/misq/pdf/V36I1/EdCommentsV36N1.pdf

– Nitzl, Christian; Rold´an, Jos´e Luis; Cepeda, Gabriel (2016). Mediation analyses in partial least squares structural equation modeling: Helping researchers discuss more sophisticated models. Industrial Management & Data Systems, 116 (9), 1849-1864. URL: http://dx.doi.org/10.1108/IMDS-07-2015-0302

– Zhao, Xinshu; Lynch, John G.; Chen, Qimei (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. Journal of Consumer Research, 37 (2), 197-206. URL: http://dx.doi.org/10.1086/651257

- Fassott, Georg; Henseler, J¨org; Coelho, Pedro Sim˜os (2016). Testing moderating effects in PLS path models with composite variables. Industrial Management & Data Systems, 116 (9), 1887-1900. URL: http://dx.doi.org/10.1108/IMDS-06-2016-0248

- Henseler, J¨org; Chin, Wynne W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. Structural Equation Modeling, 17 (1), 82-109. URL: http://dx.doi.org/10.1080/10705510903439003

- Henseler, J¨org; Fassott, Georg (2010). Testing moderating effects in PLS path models: an illustration of available procedures. In: Esposito Vinzi, Vincenzo; Chin, Wynne W.; Henseler, J¨org; Wang, Huiwen (Eds.). Handbook of Partial Least Squares: Concepts, Methods and Applications. Heidelberg, Dordrecht, London, New York: Springer, pp. 713-735. URL: http://dx.doi.org/10.1007/978-3-540-32827-8_31

- Dijkstra, Theo K.; Henseler, J¨org (2011). Linear indices in nonlinear structural equation models: best fitting proper indices and other composites. Quality & Quantity, 45 (6), 1505-1518. URL: http://dx.doi.org/10.1007/s11135-010-9359-z

- Henseler, J¨org; Fassott, Georg; Dijkstra, Theo K.; Wilson, Bradley (2012). Analysing quadratic effects of formative constructs by means of variancebased structural equation modelling. European Journal of Information Systems, 21 (1), 99-112. URL: http://dx.doi.org/10.1057/ejis.2011.36

- Henseler, J¨org (2012). PLS-MGA: A non-parametric approach to partial least squares-based multi-group analysis. In: Gaul, Wolfgang A.; GeyerSchulz, Andreas; Schmidt-Thieme, Lars; Kunze, Jonas (Eds.). Studies in Classification, Data Analysis, and Knowledge Organization: Challenges at the Interface of Data Analysis, Computer Science, and Optimization. Berlin, Heidelberg: Springer, pp. 495-501. URL: http://dx.doi.org/10.1007/978-3-642-24466-7_50

- Henseler, J¨org; Ringle, Christian M.; Sarstedt, Marko (2016). Testing measurement invariance of composites using partial least squares. International Marketing Review, 33 (3), 1-27. URL: http://dx.doi.org/10.1108/IMR-09-2014-0304

- Sarstedt, Marko; Henseler, J¨org; Ringle, Christian M. (2011). Multi-group analysis in partial least squares (PLS) path modeling: Alternative methods and empirical results. Advances in International Marketing, 22, 195-218. URL: http://dx.doi.org/10.1108/S1474-7979(2011)0000022012

- Cepeda Carri´on, Gabriel; Henseler, J¨org; Ringle, Christian M.; Rold´an, Jos´e Luis (2016). Prediction-oriented modeling in business research by means of PLS path modeling. Journal of Business Research, 69 (10), 4545-4551. URL: http://dx.doi.org/10.1016/j.jbusres.2016.03.048

- Lancelot-Miltgen, Caroline; Henseler, J¨org; Gelhard, Carsten; Popoviˇc, Aleˇs (2016). Introducing new products that affect consumer privacy: A mediation model. Journal of Business Research, 69 (10), 4659-4666. URL: http://dx.doi.org/10.1016/j.jbusres.2016.04.015

Lecturer's Biographical Note:

Jörg Henseler, PhD, is a professor at the University of Twente, The Netherlands, and a visiting professor at Universidade Nova de Lisboa, Portugal. His research interests encompass structural equation modeling, marketing research, and management of products, services, and brands. Prof. Henseler is a leading expert on partial least squares (PLS) path modeling, a variance-based structural equation modeling technique that is particularly useful in studies focused on the success factors for businesses. He has published in scholarly journals including Computational Statistics & Data Analysis, European Journal of Information Systems, International Journal of Research in Marketing, Journal of Supply Chain Management, Journal of the Academy of Marketing Science, MIS Quarterly, Organizational Research Methods, Structural Equation Modeling, and he has edited 1 two handbooks on partial least squares path modeling. He chairs the scientific advisory board of ADANCO, a new software for variance-based structural equation modeling. A popular guest speaker, Prof. Henseler has been invited by universities around the world – including Beijing University of Aeronautics and Astronautics (China), Freie Universit˙at Berlin, University of Cologne, University of Duisburg, University of Hamburg, University of Kaiserslautern, University of Paderborn (all Germany), Corvinus University Budapest (Hungary), Universidad Iberoamericana (Mexico), VU University Amsterdam, University of Groningen (both The Netherlands), University of Coimbra, Universidade Nova de Lisboa (both Portugal), University of Ljubljana (Slovenia), Universidad de Sevilla (Spain), Universit´e de Fribourg (Switzerland), The University of Manchester, Warwick Business School (both UK), and Georgia State University in Atlanta (USA) – to speak to students, faculty, and professionals about structural equation modeling. On a regular basis, Prof. Henseler provides seminars on PLS path modeling at the PLS School, through which hundreds of scholars and practitioners have been trained in structural equation modeling.