

Personality Profiles and National Innovativeness

The Mediating Role of Cultural Practices

Robert J. Rossberger

Human Resource Management & Organizational Behavior
University of Klagenfurt
Klagenfurt, Austria
Robert.Rossberger@uni-klu.ac.at

Diana E. Krause

Human Resource Management & Organizational Behavior
University of Klagenfurt
Klagenfurt, Austria
DianaEva.Krause@uni-klu.ac.at

Abstract— This study investigates the relationship between personality factors, cultural practices, and innovativeness on the national level. Based on the triangulation of three independent datasets, we test our model on a sample of $N = 33$ countries. Our results show that innovation-related aggregated national personality factors are closely linked with innovation-related national cultural practices. Further, we show that national cultural practices mediate the relationship between national personality profiles and national innovativeness.

Keywords- national personality profiles, national cultural practices, innovation, GLOBE

I. INTRODUCTION

Innovation is widely considered as an important factor for competitiveness and has been in the focus of research since decades. This is reflected in the vast amount of knowledge gained about the characteristics and determinants of innovation on the individual, the team, and the organizational level. However, not only organizations differ regarding their level of innovativeness. Undeniably, also countries differ in their levels of innovativeness.

Previous research has shown that national cultural factors are also an important determinant of innovation on the national level [1] [2] [3] [4] [5]. Additionally, a recent study by Steel et al. [6] has shown that personality factors, aggregated on the national level, are related to the level of innovation present in countries.

Both approaches – one investigating personality factors on the national level, the other national culture – provide theoretical rationale and empirical support for the existence of the proposed underlying relationships. However, both studies illuminate only a part of the picture. Therefore, we consider both components simultaneously.

The absence of a model which integrates both factors may be rooted in the distance between the underlying paradigms and theoretical approaches (cf. [7] [8]), and the hitherto missing availability of cross-national data for empirical verification. Three recently conducted, major international research projects have provided these data. These are the Personality Profiles of Cultures project [9] [10], the GLOBE study [11], and the Global Innovation Index [12]. We test our model based on the triangulation of these data.

II. THEORY

The three fundamental constructs underpinning our study are nationally aggregated personality factors [9], national cultural practices [11], and national innovation [12]. Nationally aggregated personality factors are aggregations of individual-level personality factors to the national level [13]. National cultural practice dimensions are measuring “the way things are done in this culture” [14]; they represent observable manifestations of the national cultural environment. In particular, they are more suitable for our study compared to other frameworks of national culture (i.e., Hofstede’s) which mix up cultural values and practices in one measure. National innovativeness is a measure of how innovative a country is in terms of scientific and creative outputs [15].

A. Personality and Innovation

The dominant model of personality, the five factor model [15], argues that human personality can be explained by five factors, each of them consisting of six facets [9]. These meta-analytically validated five major factors of personality are extraversion/introversion, emotional stability, agreeableness, conscientiousness, and openness to experience [17].

Extraversion consists of the facets (sub-factors) of warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions [18]. Extraverted individuals tend to have a pronounced engagement with the external world, are enthusiastic, full of energy, and tend to experience positive emotions. Contrarily, introverts lack this exuberance, energy, and activity and tend to be quite, deliberate, and disengaged [17].

Emotional stability consists of the facets of the absence of anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability [18]. Individuals scoring low on emotional stability have a tendency to experience negative feelings, to be emotionally reactive, and to emotionally overreact to events which would not affect most people. This often makes them interpret normal situations as threatening and difficult, which can diminish the ability to think clearly, make decisions, and cope with stress. Contrarily, individuals that score high on emotional stability are calm, and relatively free of persistent negative feelings [17].

Agreeableness consists of the facets of trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness [18]. Agreeable individuals are concerned with cooperation and social harmony, want to get along with others, tend to have an optimistic view on human nature, and tend to be basically honest, decent, and trustworthy. Contrarily, disagreeable individuals tend to place their self-interest above getting along with others and tend to be indifferent to the well-being of others, which often makes them appear unfriendly and uncooperative [17].

Conscientiousness consists of the facets of competence, order, dutifulness, achievement-striving, self-discipline, and deliberation [18]. Individuals with high conscientiousness have a tendency to plan, show higher persistence, and are often regarded by others as intelligent and reliable. Individuals with low conscientiousness tend to be unreliable, show lower ambition, and often show more affinity for short-term solutions and pleasures [17].

Openness to experience consists of the facets of fantasy, aesthetics, feelings, actions, ideas, and values [19]. Individuals scoring high in openness to experience tend to be intellectually curious, are interested in art, sensitive to beauty, tend to be more aware of their feelings, and to think and act in individualistic, nonconforming ways. Individuals which score low on this trait tend to have a narrow, common sphere of interest and to prefer plain and straight forward issues over complex, ambiguous, and subtle subjects. Overall, they have a tendency to prefer familiarity over novelty and conservatism over change [17].

Previous research on the relationship of these personality factors and innovation on the individual level has shown that three personality dimensions are significantly related to innovation: openness to experience, extraversion, and agreeableness [20]. However, a recent study by Steel et al. [6] found significant relationships on the national level only for openness to experience and agreeableness.

Openness to experience includes aspects like imagination, intellectual curiosity, and the tendency to re-examine traditional values [21]. People who are open to experience are willing to engage in new and novel experiences and ideas and like to challenge philosophies and worldviews. Therefore, this factor is strongly associated with creativity [22]. Creativity is a main component of innovation and especially important in the invention phase of innovations [23]. Overall, openness to experience is positively related with innovation, and Steel et al. [6] recently reported a positive relationship between national scores of openness to experience and innovation on the national level.

People who rank high on agreeableness are trustworthy, honest, and altruistic [24]. On the individual level, several studies reported a negative relationship between agreeableness and innovation [25], which means individuals with lower agreeableness tend to be more innovative. However, the relationship may be different on societal levels of analysis. Agreeableness largely influences how people conduct their social relationships. As innovations not only consist of creative inventions, but also have to be implemented [17], agreeableness is connected with the implementation of

innovations. Inventors have to manage social networks and interact with business partners, organizations, or governments to be successful. Higher levels of agreeableness support these social interactions [6]. Steel et al. reported a positive relationship between national scores of agreeableness and innovation on the national level [6]. Based on these considerations we assume that:

H1. The nationally aggregated personality factors of openness to experience and agreeableness are positively linked to national innovativeness.

B. Personality and Culture

Previous research has shown that nationally aggregated personality scores are significantly correlated with national culture [27]. Despite controversy about the underlying mechanism, Hofstede and McCrae pointed out that even though societies are mixes of individuals, differences in the mean level of national personality profiles tend to promote different cultural practices [27].

Basically, we argue that the innovation-related personality profiles of openness to experience and agreeableness are linked to cultural environments, which are reflected by specific cultural practice dimensions. Conceptually, this means that we are interested in the relationship between two higher-order factors: innovation-related national personality factors (reflected in openness to experience and agreeableness) and innovation-related cultural practices (reflected in future orientation, institutional collectivism, in-group collectivism, performance orientation, and uncertainty avoidance).

We base our second hypothesis on the synthesis of the following theoretical arguments: First, personality factors are relatively fixed and stable [16]. Therefore, culture only shapes the manifestation and expression of personality factors. This results in characteristic adaptations. Characteristic adaptations include values, skills, habits, attitudes, interests, roles, and relationships [16]. Second, personality factors on the national level influences culture simultaneously. Reverse causation hypothesis [27] shows that societal-level personality factors influence manifestations of culture, such as practices and institutions. These cultural manifestations are social adaptations and reflections of the psychological environment which the aggregated distribution of personality factors represents [27].

These two core arguments, characteristic adaptations and reverse causation hypothesis, augment each other: the former by supporting culture related to the underlying personality profiles structure, the latter by facilitating the manifestation into cultural practices. Therefore, we assume that countries having innovation supportive national personality profiles should also have an innovation supportive national cultural practices environment, and vice versa. Therefore, we hypothesize:

H2. Innovation-related national personality profiles are linked to innovation-related national cultural practices.

C. Mediation Effect of Culture

National cultural practices do not only influence the relationship between national personality factors and national innovativeness; they are also influenced themselves by national aggregated personality factors. This makes them a mediator. On the individual level, cultural practices moderate the relationship between individual traits and innovative behavior. That is because the individual can hardly influence national cultural practices. In contrast, on the national level, cultural practices necessarily act as a mediator as they are influenced by national dispositions in personality [27]. Conceptually, this argument is supported by the consideration that statistically moderators and mediators should not be correlated with the independent variable, but mediators must [28]. The first is more likely the case when investigating the personality factors–culture relationship on the individual level, the second when investigating it on the national level.

Additional to the existence of the mediation effect, also the characteristics of underlying mechanisms are of interest. We refer to person-environment-fit theory [29] [30] [31] for our considerations. Person-environment-fit theory states that the congruence between person and environment positively influences behavioral outcomes, for example creativity [32]. Kristof [30] identified two basic types of fit between people and their environment: supply–values fit, and demands–abilities fit. Supply–values fit is present when the environment supplies attributes that are desired or valued by the persons; demands–abilities fit occurs when people have skills, knowledge, and other resources that are required by their environment [29].

We argue that person-environment-fit theory also works on the societal level, however, with an additional determinant and constraint. First, in accordance with hypothesis one, on the aggregated level, environmental factors depend on the individuals: the people make the place [33]. Second, demand–abilities fit is difficult to include and judge meaningfully on the national level. Therefore, we limit our discussion to supply fit and demand fit. In the context of national innovativeness, supply fit occurs when national cultural practices contain innovation-related attributes and characteristics which are desired by the citizens. Consequently, demand fit occurs when what is demanded by the environment and possessed by the citizens is congruent.

Concretely this means that if in a country an innovation-friendly constellation of national personality profiles (high openness to experience and high agreeableness) and cultural practices (low in-group collectivism, high institutional collectivism, future orientation, performance orientation, and uncertainty avoidance) exists, good fit is enabled [29], which in turn relates to national innovativeness. In opposition, if national cultural practices are opposite, innovative national personality profiles cannot manifest themselves and will not relate to innovativeness. Therefore, we hypothesize the indirect effect between national personality profiles and national innovativeness via national cultural practices to be higher than the direct effect, which means mediation.

H3. Innovation-related national cultural practices mediate the relationship between national personality profiles and national innovativeness.

The following figure illustrates our model.

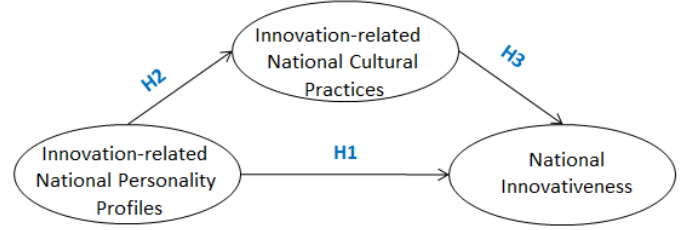


Figure 1. Model and Hypotheses

III. METHODOLOGY AND EMPIRICAL DATA

A. Empirical data

To test our model, we triangulate three different and independent datasets. To be included into our sample, a country had to fulfill the following requirements: data from the Personality Profiles of Cultures project, from the GLOBE study as well as from the Global Innovation Index had to be reported. The criteria of selection results in a sample of $N = 33$ countries.

Table 1. Countries Included in the Analysis

Argentina	Hong Kong	Morocco	Spain
Australia	India	New Zealand	Switzerland
Austria	Indonesia	Nigeria	Thailand
Brazil	Ireland	Philippines	Turkey
Canada	Italy	Poland	United Kingdom
China	Japan	Portugal	United States
Denmark	Kuwait	Russia	
France	Malaysia	Slovenia	
Germany	Mexico	South Korea	

B. Measurement of Aggregated Personality, National Cultural Practices and National Innovation

For measuring aggregate personality factors, we use data reported by the Personality Profiles of Cultures project. This project reported aggregated personality data for 51 countries, from which we could use 33 in our analysis. As a measure of cultural practices, we use data reported in the GLOBE study. The GLOBE study is a long-term research project initiated in 1994 by Robert House [11]. The GLOBE study collected data from 17,370 respondents, from 951 organizations in 62 countries. Finally, as a measure of national innovativeness, we use data from the Global Innovation Index. The Global Innovation Index was launched in 2007 by INSEAD to find metrics, measurements, and approaches to capture the “whole picture of Innovation” [12]. It integrates “hard and soft data” [15], that is, economic data and survey results from

international organizations such as the World Bank and the United Nations.

Table 2. Measurement of Constructs

Construct	Components	Measurement	Source
Innovation-related national personality profiles	1.Openness to experience 2.Agreeableness	Reflective	McCrae et al., 2005
Innovation-related national cultural practices	1. In-group collectivism 2. Institutional collectivism 3. Future orientation 4. Performance orientation 5. Uncertainty avoidance	Reflective	House, R. et al., 2004
National innovativeness	1.Scientific outputs 2.Creative outputs	Reflective	Insead, 2010 & 2011

We test our hypotheses and our model by using Partial Least Square (PLS) equation modeling. We do so because the sample size of $N = 33$ countries is too small for the application of covariance-based structural equation modeling (i.e., LISREL approach). Therefore, the application of variance-based structural equation modeling is required. We use the software SmartPLS [34] to test our model.

IV. RESULTS

A. Evaluation of the Measurement Model

We operationalized our three latent variables as reflective constructs. All indicator loadings, except institutional collectivism, are above the recommended value of .70. All loadings were also significant at least to the 1% level running 1,000 bootstrap samples; therefore, indicator reliability can be assumed. The significant relationship of institutional collectivism also motivated us to keep the dimension in our model despite the low factor loading.

We tested construct reliability by using Composite Reliability (CR). For all constructs, the CR is between .72 and .92, that is, above the recommended threshold of .70; therefore, construct reliability can be assumed.

Discriminant validity is measured with the Average Variance Extracted (AVE) parameter. The AVE values of our model are between .62 and .85, that is, well above the recommended threshold of .50. To ensure discriminant validity, the square roots of the AVE values have to be greater than the values in the corresponding rows and columns of the correlation matrix of the latent constructs [35]. Our model fulfills also these criteria. Also, cross loadings show that all indicators load highest on their corresponding construct and every construct loads highest on its own items. Overall, discriminant validity is given.

B. Evaluation of the Structural Model

The R^2 measure of the endogenous construct on national innovativeness is .60, which is good to substantial [36] [37]. Significance of the path models has been tested by running 1,000 bootstrap samples. The path coefficient between the second-order factors of innovation-related national personality profiles and innovation-related national culture is significant ($\beta = .65$; $p < .001$). The path coefficient between the second-order factors of innovation-related national culture and national innovativeness is also significant ($\beta = .71$; $p < .001$). However, the path between the second-order factors of innovation-related national personality profiles and national innovativeness is insignificant ($\beta = .09$; n.s.).

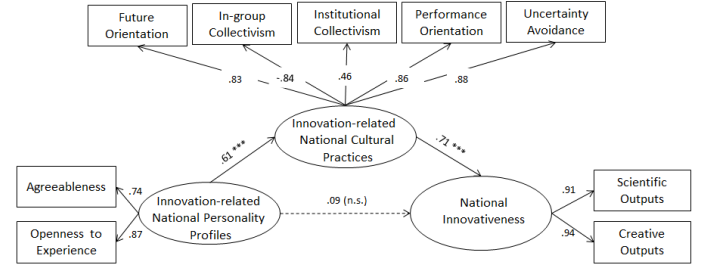


Figure 2. Structural Model

These findings support two of our three hypotheses. In particular, the finding that the direct path between innovation related national personality profiles and national innovativeness is insignificant (which leads to rejection of Hypothesis 1) when including national culture in the model supports our conceptualization of national culture as a mediator [28].

V. DISCUSSION

In this study, we proposed a model which includes national aggregated personality and cultural factors. In so doing, we have extended current research as these two factors have not been considered in one model as antecedents of innovation yet. We showed that the direct relationship between national personality profiles and national innovativeness vanishes when national cultural practices are integrated into the model. Methodically, this is analogous to controlling the direct relationship for the effect of a third variable, namely national cultural practices [28]. Concretely this means that national innovativeness is closer related to cultural factors than to national personality profiles and that national personality profiles rather could be considered as antecedents of cultural practices.

Our model carries also important practical implications. As national cultural practices could be influenced, this opens up the possibility of intervention on the societal level. However, on the national level this is a difficult, long-term topic that should be approached by national policies, regulations, and education. A more directly applicable approach and concrete suggestions for management could be derived from our model

for organizations operating in specific countries. We demonstrate this regarding personnel selection and leadership.

Focusing on personnel selection it is of higher importance in countries with a tendency to innovation-adverse national personality profile to focus especially on personnel selection if employees with innovation-relevant personality profiles are needed. On the organizational level, such an innovation-related focus on personnel selection would not only impact the subset of trait dispositions, which enters the organization, but also regulate the entrance of cultural practices into the organization [33].

Leadership behavior cannot influence personality factors, but the manifestation of them in observable behavior. Increasing degrees of freedom and autonomy (delegative-participative leadership) and of tolerance and openness in decision-making processes [38] as aspects of leadership behavior are likely to increase the chance that even lower levels of openness to experience may find their way to innovation. Participative leadership behavior raises consensus and involvement of employees [39] [40] and, therefore, may have positive effects on the manifestation of agreeableness. This is especially important if the average level of agreeableness in society is low. Those behaviors also positively impact the national cultural practices mediator: autonomy and degrees of freedom (tending to decrease effects on in-group collectivism), error tolerance (decreasing uncertainty avoidance), and participation and openness in decision-making processes (increasing performance and future orientation).

Like every study, our study has some limitations. One limitation of our study is the sample size. This limitation is inherent in the level of analysis of our study, which are countries. Although common rules for required sample size do not apply to country-level analysis, as data on this level tends to be more stable and reliable than individual level data [41], we tried to approach this limitation by choosing the statistical approach which fits best these requirements: covariance-based structural equation modeling. Additionally, we based our study on three independent and elaborate datasets. However, these data sources are not free of critics either.

The GLOBE study was criticized for over-distinguishing cultural dimensions [28]. We believe that this point does not influence our study as we used the higher-order factor of the innovation-related GLOBE dimensions, which eliminates these problems. The aggregation of the Big Five personality factors to the national level and the investigation of the linkage of those with society-level outcomes such as innovation is also an issue which may appear exotic to personnel psychologists [13]. However, it should not be forgotten that also the acceptance of "personality traits at the individual level has had a very stormy history" [13]. Most industrial and organizational psychologists derided trait measures as such as useless in their area until Barrick and Mount's meta-analysis [17] was published. Therefore, in line with McCrae [43], we argue that aggregated personality factors are a reasonable criterion to indicate a

profile of disposition on the national level. Finally, the Global Innovation Index has also been criticized for methodological and over-aggregation issues. We tried to overcome these problems by using not the final index score but those components of the index that correspond the most with innovation management literature. This increases validity by focusing on the most innovation-related components only and decreases over-aggregation by being more specific.

REFERENCES

- [1] M. Lynn and B. D. Gelb, "Identifying innovative national markets for technical consumer goods," *International Marketing Review*, vol. 13, no. 6, pp. 43 - 57, 1996.
- [2] S. Shane, "Cultural influences on national rates of innovation," *Journal of Business Venturing*, vol. 8, no. 1, pp. 59-73, 1993.
- [3] H. Sun, "A meta-analysis on the influence of national culture on innovation capability," *International Journal of Entrepreneurship and Innovation Management*, vol. 10, no. 353-360, 2009.
- [4] M. Z. Taylor and S. Wilson, "Does culture still matter?: The effects of individualism on national innovation rates," *Journal of Business Venturing*, vol. 27, no. 2, pp. 234-247, 2012.
- [5] Y. M. Van Everdingen and E. Waarts, "The effect of national culture on the adoption of innovations," *Marketing Letters*, vol. 14, no. 3, pp. 217 - 232, 2003.
- [6] G. D. Steel, T. Rinne, and J. Fairweather, "Personality, nations, and innovation: Relationships between personality traits and national innovation scores," *Cross-Cultural Research*, vol. 46, no. 1, pp. 3-30, 2012.
- [7] T. A. Church, "Prospects for an integrated trait and cultural psychology," *Eur. J. Pers.*, vol. 23, no. 3, pp. 153-182, 2009.
- [8] M. Cole, *Cultural psychology: A once and future discipline*, 5th ed. Cambridge, Mass: Belknap Press of Harvard Univ. Press, 2000.
- [9] R. R. McCrae and A. Terracciano, "Personality profiles of cultures: Aggregate personality traits," *Journal of Personality and Social Psychology*, vol. 89, no. 3, pp. 407-425, 2005.
- [10] R. R. McCrae and A. Terracciano, "National character and personality," *Current Directions in Psychol Sci*, vol. 15, no. 4, pp. 156-161, 2006.
- [11] R.J. House, Ed, *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage, 2004.
- [12] INSEAD, *Global Innovation Index 2010*. Available: http://www.globalinnovationindex.org/gii/main/previous/2009-10/FullReport_09-10.pdf (2010, Nov. 30).
- [13] R. R. McCrae and A. Terracciano, "The five-factor model and its correlates in individuals and cultures," in *Multilevel analysis of individuals and cultures*, F. J. van de Vijver, Ed, New York: Lawrence Erlbaum Associates, 2008, pp. 249-284.
- [14] H. C. Triandis, "Foreword to the GLOBE study," in *Culture, leadership, and organizations: The GLOBE study of 62 societies*, R. J. House, Ed, Thousand Oaks, CA: Sage, 2004, pp. xv-xix.
- [15] INSEAD, *Global Innovation Index 2011*. Available: <http://www.globalinnovationindex.org/gii/main/fullreport/index.html> (2011, Jun. 18).
- [16] R. R. McCrae and P. T. Costa, "A five factor theory of personality," in *Handbook of personality: Theory and research*, L. A. Pervin, Ed. 2nd ed, New York: Guilford Press, 2001, pp. 139-153.
- [17] M. R. Barrick and M. K. Mount, "The big five personality dimensions and job performance: A meta-analysis," *Personnel Psychology*, vol. 44, no. 1, pp. 1-26, 1991.
- [18] R. R. McCrae and A. Terracciano, "Universal features of personality traits from the observer's perspective: Data from 50 cultures," *Journal of Personality and Social Psychology*, vol. 88, no. 3, pp. 547-561, 2005.

- [19] R. R. McCrae, "Consensual validation of personality traits: Evidence from self-reports and ratings," *Journal of Personality and Social Psychology*, vol. 43, no. 2, pp. 293–303, 1982.
- [20] N. Kwang and D. Rodrigues, "A big-five personality profile of the adaptor and innovator," *The Journal of Creative Behavior*, vol. 36, no. 4, pp. 254–268, 2002.
- [21] L. A. King, L. M. Walker, and S. J. Broyles, "Creativity and the five-factor model," *Journal of Research in Personality*, vol. 30, no. 2, pp. 189–203, 1996.
- [22] J. M. George and J. Zhou, "When openness to experience and conscientiousness are related to creative behavior: An interactional approach," *J Appl Psychol*, vol. 86, no. 3, pp. 513–524, 2001.1
- [23] T. M. Amabile, *Creativity in context: update to the social psychology of creativity*: Westview Press, 1996.
- [24] H. Zhao and S. E. Seibert, "The big five personality dimensions and entrepreneurial status: a meta-analytical review," *J Appl Psychol*, vol. 91, no. 2, pp. 259 - 71, 2006.
- [25] F. Patterson, "Great minds don't think alike? Person-level predictors of innovation at work," in *International review of industrial and organizational psychology 2002*, C. L. Cooper and I. T. Robertson, Eds, West Sussex, England: John Wiley & Sons Ltd, 2002, pp. 115–144.
- [26] U. R. Huelshager, N. R. Anderson, and J. F. Salgado, "Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research," *J Appl Psychol*, vol. 94, no. 5, pp. 1128–1145, 2009.
- [27] G. Hofstede and R. R. McCrae, "Personality and culture revisited: Linking traits and dimensions of culture," *Cross-Cultural Research*, vol. 38, no. 1, pp. 52–88, 2004.
- [28] R. M. Baron and D. A. Kenny, "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, vol. 51, no. 6, pp. 1173–1182, 1986.
- [29] J. R. Edwards, "An examination of competing versions of the person-environment fit approach to stress," *Academy of Management Journal*, vol. 39, no. 2, pp. 292–339, 1996.
- [30] A. L. Kristof, "Person-organization fit: An integrative review of its conceptualizations, measurement, and implications," *Personnel Psychology*, vol. 49, no. 1, pp. 1–49, 1996.
- [31] P. M. Muchinsky and C. J. Monahan, "What is person-environment congruence? Supplementary versus complementary models of fit," *Journal of Vocational Behavior*, vol. 31, no. 3, pp. 268–277, 1987.
- [32] J. N. Choi, "Person-environment fit and creative behavior: Differential impacts of supplies-values and demands-abilities versions of fit," *Human Relations*, vol. 57, no. 5, pp. 531–552, 2004.
- [33] B. Schneider, "The people make the place," *Personnel Psychology*, vol. 40, no. 3, pp. 437–453, 1987.
- [34] C. M. Ringle, S. Wende, and A. Will, *SmartPLS*. Hamburg, Germany: SmartPLS, 2005.
- [35] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research (JMR)*, vol. 18, no. 1, pp. 39–50, 1981.
- [36] J. Henseler, C. M. Ringle, and R. R. Sinkovics, "The use of partial least squares path modeling in international marketing," *Advances in International Marketing*, vol. 20, pp. 227–319, 2009.
- [37] M. P. Schloderer, C. M. Ringle, and M. Sarstedt, "Einführung in die varianzbasierte Strukturgleichungsmodellierung: Grundlagen, Modellevaluation und Interaktionseffekte am Beispiel von SmartPLS," in *Theorien und Methoden der Betriebswirtschaft: Handbuch für Wissenschaftler und Studierende*, M. Schwaiger and A. Meyer, Eds. 1st ed, München: Vahlen Verlag, 2009, pp. 573–602.
- [38] D. E. Krause, "Innovationsförderliche Führung: Eine empirische Analyse," *Zeitschrift für Psychologie*, no. 2, pp. 61–76, 2005.
- [39] B. M. Bass and R. Bass, *The Bass handbook of leadership: Theory, research, and managerial applications*, 4th ed. New York, NY: Free Press, 2008.
- [40] X. Huang, J. C. Rode, and R. G. Schroeder, "Organizational structure and continuous improvement and learning: Moderating effects of cultural endorsement of participative leadership," *Journal of International Business Studies*, vol. 42, no. 9, pp. 1103–1120, 2011.
- [41] D. A. Hemert, F. J. Vijver, and Y. H. Poortinga, "Multilevel models of individuals and cultures: Current state and outlook," in *Multilevel analysis of individuals and cultures*, F. J. van de Vijver, Ed, New York: Lawrence Erlbaum Associates, 2008, pp. 413–430.
- [42] G. Hofstede, "What did GLOBE really measure?: Researchers' minds versus respondents' minds," *J Int Bus Stud*, vol. 37, no. 6, pp. 882–896, 2006.
- [43] R. R. McCrae, "Human nature and culture: A trait perspective," *Journal of Research in Personality*, vol. 38, no. 1, pp. 3–14, 2004.