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HOW SHOULD WE MEASURE INNOVATION? A META-ANALYSIS ON THE RELATIONSHIP BETWEEN INDICATORS OF INNOVATION (SUMMARY)

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SUMMARY

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Principal Topic

Innovation has been one of the most extensively studied variables in Strategic Management research. However, there is still no consensus on the conceptualization and measurement of innovation. In fact, innovation is measured using various indicators reaching from R&D intensity to the percentage of sales derived from new products. Based on the knowledge that innovation indicators have their strengths and weaknesses researchers frequently apply more than one measure, often without justification. It is not clear, however, whether these indicators describe a uni- or multi-dimensional construct or if they are even unrelated and, thus, a collection of multiple constructs. Innovation literature distinguishes three types of indicators: input-, throughput-, and output-related measures. In order to reveal whether these dimensions of the innovation construct exist and which measures belong to each of the dimensions we conduct a meta-analysis on the relationship between different innovation indicators.

Method

Meta-analysis is a systematic approach to integrate results across previously conducted studies and to account for sources of artificial variance. The advantage over narrative reviews is the quantification of effect sizes; this enables researchers to give information on the direction and the magnitude of effects. We apply the formulas suggested by Hunter & Schmidt (2004) for estimating the effect size, which is corrected for sampling error.

Results and Implications

This meta-analysis aims to shed light on the problematic issue of how to conceptualize and measure innovation. The overall result of our analysis indicates that innovation indicators found in primary studies are far from measuring a uni-dimensional construct. We find small to medium correlations among innovation indicators suggesting that they are measuring different dimensions or even different constructs. This result has extensive impact on empirical research. Depending on their theoretical assumptions, authors will have to define innovation more precisely and use adequate measures in order to assess the relevant construct dimension derived from theory. Our study shows that the question which innovation measure is used in primary studies may affect research results significantly. Further examination of innovation measures regarding their content, convergent and discriminant validity is an important task for future research.

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