ORGANIZATIONAL INNOVATION FOR SME'S: A MODEL FOR LATVIA

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Abstract. Small and medium-sized enterprises (SMEs) can be a significant source of innovation in small economies. SMEs face challenges of limited capacity, personnel and resources for long-term investments. Additionally, they might not see and understand the benefits of innovation. Implementation of organizational innovation (OI) could give such enterprises an opportunity to improve competitiveness and develop other types of innovation.

The purpose of this study is to develop a model, explaining OI through such factors as organizational culture (OC) and knowledge management (KM) in SMEs via an empirical study across various industries.

Surveying 600 SMEs in Latvia, the authors explore the contribution of organizational factors - cooperation, trust, inclusive decision making, result orientation and long-term strategic planning, as well as knowledge management and organizational learning processes to OI performance. The authors propose a conceptual model in several steps, the current step focuses on Organizational Innovation Analysis through Regression Methods and on a final step a whole model for all kinds of Innovation outputs (not only organizational) will be designed through Structural Equation Modelling. After current analysis the influence of Human/Individual values over Organizational Innovation seems to be confirmed.

Keywords: *innovation, organizational innovation, organizational learning, regression models, organizational culture.*

JEL code: D83, O31

Introduction

Innovation can have a vital role to improve business competitiveness, performance and sustainable development in knowledge-based economies. Innovative SMEs could differentiate themselves from the competition (Porter, 1980), however, SMEs significantly lag large companies in terms of innovation.

SMEs face challenges of limited capacity, personnel and resources for long-term investments. Additionally, they might not see and understand the benefits of innovation.

Innovation is frequently seen in a rather narrow context; however, innovation is not limited to introduction of new products and services. New forms of workplace organization, new managerial concepts, cross-functional teams, decentralization of decision making and continuous quality improvement – all can be considered forms of organizational innovation (Schumpeter, 1934; Damanpour, 1987; OECD-Eurostat, 2005). Various types of technological and non-technological innovation exist, often closely interlinked. While many studies focus product and process innovation, an increasing number of studies assess also non-technological, including organizational innovation.

Organizational culture and knowledge management processes are important drivers of innovation. A culture oriented towards collaboration, trust and open-mindedness, for instance, encourages new initiatives and ideas. A culture can foster long-term thinking and understanding of responsibility through collective values, behaviors and practices, thus contributing to innovation performance (King, 2007; Turró et al., 2014). Culture shapes attitudes towards independence, risk and the power balance (Shane, 1994; Tan, 2002; Alvarez and Urbano, 2012). Culture has an impact on the form and effectiveness of leadership (Aktas et al., 2015). More ethical work culture and organizational behavior could also lead to better organizational innovation performance (Apsalone & Flores, 2018).

Culture has an impact on productivity, as it influences decision-making process, can increase organizational resilience and forms attitudes towards social equality (Throsby, 2001).

Knowledge management and organizational learning contribute to skillsets and abilities of individual employees and strategic approach towards building a resilient, innovative organization. Several studies (Argyris & Schön, 1978, Nonaka & Takeuchi, 1995) consider the positive impact of organizational learning on innovation, most of these studies, however, analyze technological innovation. Fewer studies exist on KM related to non-technological innovation, particularly in SMEs. Several previous studies (Apsalone et al., 2017; Dukeov at al., 2018) concluded that OC has a strong, positive influence on organizational learning and OI, and that taken together with KM and organizational learning OC could partly explain all types of OI.

Thus, this study further examines the relationship and develops a statistical model that could better explain the relation between the OC - cooperation, trust, learning, involvement in decision making, evaluation of inputs towards the results, long-term strategic planning, knowledge management processes and OI performance. The study proposes insights that contribute to theoretical and practical discussions on fostering small business innovation of small businesses in small economies.

Literature Review

Organizational Innovation:

The literature review demonstrates that innovation contributes to organizational competitiveness (Damanpour et al. 1989; Schulz & Jobe 2001). Innovation includes an adoption of an idea, behavior, system, policy, program, device, process, product or service new to the organization (Damanpour, 1992). Organizations can implement innovation at various levels and structures, and it can also relate to the overall structure and principles of the organization (Wengel et al., 2002).

Several definitions of OI exist (Gera & Gu, 2004, Lam, 2004). Black and Lynch (2005) described OI through workforce training, flexible and decentralized design of work, greater employee autonomy and shared rewards. Some studies suggest OI as a response to technological innovation (Danneels, 2002), at the same time others emphasize the independent role that OI can play for organizational development (Tidd et al., 2005). This study uses the OECD-Eurostat definition provided in the Oslo manual (2005: 51) and defines the OI as a *"the implementation of a new organizational method in business practices, workplace organization or external relations."*

Direction of long-term research about innovation ecosystems:

The current research needs to be considered inside of a bigger scope research to be carried out in the long term in the framework of Innovation Ecosystems.

Taking as a starting point the Research performed by a multinational research team, The Consortium on Applied Research and Professional Education (CARPE), which includes several Universities and Research Centers from European Union under the FINCODA project (Pérez-Peñalver, M.J. et al, 2018), the authors of the current research pretend to replicate an experiment, in the long term, replacing behavioural indicators by Human/Individual Values as those explained in the beginning of this document.

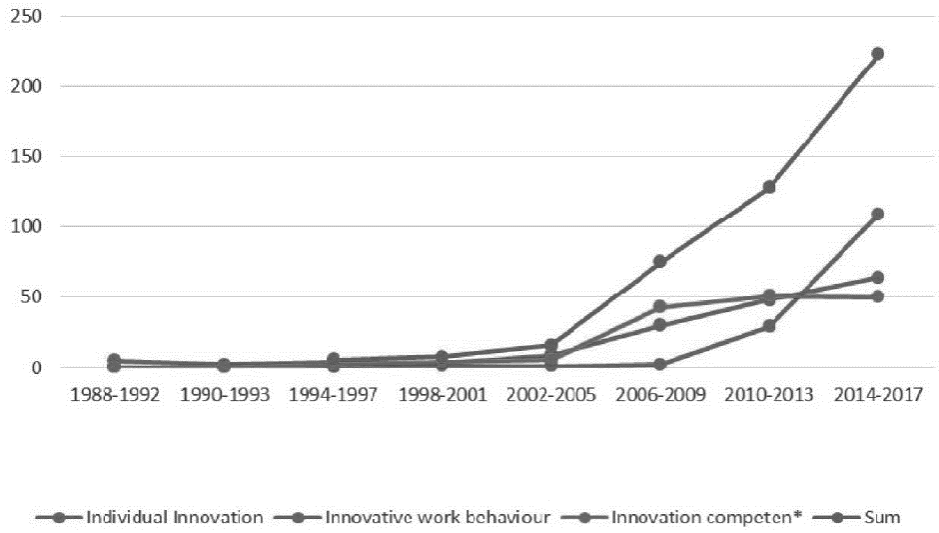
Currently we are in the first stages of such long-term research, applying multivariate methods, in this case Factor Analysis and Multivariate Regression Analysis, in order to get an idea of the factors of influence over organizational innovation of SME's in Latvia.

This first analysis will give place later to a full network of relationships between Organizational Innovation outputs and other forms of innovation in which variables will be both exogenous and endogenous, depending on the equation selected, inside of a Structural Equation Model.

Reference Model:

From all researches found the most interesting one was Identification and Classification of Behavioural Indicators to Assess Innovation Competence (Pérez-Peñalver, M.J. et al, 2018) as intended to create a Model for Assessing Innovation Competence based on 34 Items (through a Likert Scale with answers in the range of 1 to 5) which were condensed in 5 main components after applying Exploratory Factor Analysis. These components were Creativity, Critical Thinking, Initiative, Team Work and Networking.

Due to the fact that the number of researches about this topic is huge and that it is increasing exponentially along time we do not discard that more relevant researches could be found later on as we keep researching.



Source: Pérez-Peñalver, M.J. et al, (2018)

Fig. 1. **Evolution of number of researches on Innovation between 1988 and 2017**

Research results and discussion

Data base:

We used a structured, closed-ended questionnaire to assess the relationship between human/individual values and organizational innovation.

The first part of the questionnaire included statements about organizational values, attitudes and behaviours. The questions about human/individual values were asked not about managers themselves, but about employees in their organizations. Statements were measured using the Likert scale from 1, where the statement was completely inapplicable to the enterprise, to 10, where the statement was fully applicable to the enterprise.

Diagnose:

Following Hair and co-authors (Hair et al., 2010) we selected Exploratory Factor Analysis as the right statistical technique according to the nature of our data (discrete quantitative) and the assumptions needed in order to be able to generalize conclusions to the population (to perform Statistical Inference).

First thing to be performed was trying to decrease the dimension of the problem by finding common roots (components) which could allow us to group variables and to summarize them in just one component which could summarize all the information about such variables. Its main purpose is to skip multicollinearity when analyzing data through Regression Analysis in a further step.

Regression Analysis:

After getting the main components or factors we can use these factors to perform a Regression Analysis without Multicollinearity.

Assumptions Testing:

The main assumptions to be tested for Regression Analysis are those of Classical Methods, this assumption testing is needed for a double goal, first it will help us to diagnose the technique that best fits our Database and second, it will determine the possibility of performing Inference (Hypothesis Testing) about some parameters.

I.Linearity:

As an average the explaining variables have a linear relationship with the dependent variable, this means that:

$$\bar{y} = \hat{a} + \hat{b} * \bar{x} \quad (1)$$

II.Independence:

Variables of the sample are stochastically independent, that means:

$$E(X_i X_j) = 0 \ \forall \ i \ \neq j \quad (2)$$

III.Homoscedasticity:

The variance of the error or residuals keeps constant by different levels (values) of the dependent variable. Mathematically:

$$Var(X_i) = \sigma^2 \ \forall \ i \qquad (3)$$

IV.Normality:

The error or residuals behave in probability like a Normal Distribution, that way putting all assumptions together we would get:

$$Y_i \ \sim \ N(\mu, \sigma^2) \ \forall \ i \quad (4)$$

This means that the dependent variable follow a Normal Probability Distribution with mean μ and Variance σ^2.

In our case we have detected Heteroscedasticity in error or residuals in some models. Being this true the consequences for the Estimators of the Predictors coefficients (The Betas of our Regression equation) are that such estimators would keep being unbiased and consistent, but they would not be efficient anymore.

Results:

The use of the Factor Scores, obtained through Factor Analysis technique, as Predictors of Organizational Innovation (OI) did not give good results. They assured to fulfill the assumption of No-Multicollinearity but the Goodness of Fit measured through the Adjusted Pearson's Coefficient of Determination was very low, less than 2%, and, on the other hand, they gave high values for the Standard error.

The main predictors of Organizational Innovation were Creation, Updating and Planning. There were dummy effects which would shift the Regression Line upwards or downwards for variables Seniority, Size, Foreign Capital, Turnover, Address and Industry.

About whether the Goodness of Fit of the Regression Line to the data points, as measured by the Adjusted Pearson's Coefficient of Determination, is big enough or not we have found in the Literature about this issue several opinions that consider that in Social Sciences is terribly difficult to get a value for this coefficient greater than a 50% (See the Reference manual on scientific evidence, 3rd ed, from the American National Academy of Sciences, 2011) since there will be always some predictors which will not be included in the Regression Model due to the subjectivity of this kind of phenomena. Being ours close to 40% we consider that it is good enough and, therefore, results are both significant and generalizable to the population.

Conclusions, proposals, recommendations

The results seem to show that certain Human/Individual values, like Creation, Updating and Planning, influence Organizational Innovation in Latvian SME's. The consequences of this is that companies could foster Organizational Innovation by recruiting employees who score high in these values and this could be assessed by companies through

some psychometric tests to be performed by future employees. The usefulness of the present research is about making SME's in Latvia aware of this possibility.

In future steps of the current research line other features of Innovation in Latvian SME's will be analysed, enlarging the scope and the utility for such companies. Nonetheless these results could still be improved by applying some statistical methods and techniques related to the following features:

Variable types:

The variables used along this research are of a quantitative nature but, nonetheless, are not continuous variables unless discrete ones. Additionally, they use a few values, integer numbers from 1 to 10, and this fact limits their computation for Regression purposes.

Homoscedasticity:

We have detected heteroscedasticity for error or residuals while applying Regression methods. We could still improve the accuracy of the estimators for the coefficients of the predictors by fixing residuals' homoscedasticity through some advanced statistical techniques.

Correlation does not mean causation:

This sentence refers to the fact that effects from third variables could be influencing results and if positive there would be a misspecification error.

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