

## The Effects of Environment Uncertainty and Leadership Styles on Organisational Innovativeness

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*The paper aims to better understand the importance of a company's external environment uncertainty level and the CEO's leadership style for innovation. Different leadership styles were assessed in the context of a full range leadership theory, namely: transformational (Tfl), transactional (Tsl) and passive leadership (PL). Partial Least Squares-Structural Equation Model was developed, tested and validated to explain the effect of environment uncertainty and leadership style on organisational innovativeness. The hypotheses were tested using responses of managers from 159 medium and large organisations in the Republic of Serbia during 2017. The results suggest that there is a statistically significant relationship between environment uncertainty and organisational innovativeness, while transformational leadership was described as important leadership style that cannot be ignored if organisation wants to improve organisational innovativeness. Influence of transactional leadership was not statistically significant, while passive leadership style was found to have the negative influence on organisational innovativeness. Based on the results of the study, practical implication of creating a more supportive workplace for all types of innovation is emphasised. Encouraging managers to predominantly use proactive leadership, i.e. transformational style, facilitates significant innovative capacity. The effective use of leadership style and its innovativeness in South-eastern European countries is vastly unexplored. Thus, the results of the research fill the literature gap between Western leadership theory and South-eastern European context.*

**Keywords:** *Environment Uncertainty; Transformational Leadership; Transactional Leadership; Laissez-Fair Leadership; Organisational Innovativeness; PLS-SEM.*

### Introduction

In order to survive, the organisations performing in an uncertain environment are highly motivated to improve proficiency in managing innovation (Prokop & Stejskal, 2017), resulting in higher organisational innovativeness. In a vast body of literature, leadership has emerged as one of the most important innovation predictor (Dunne *et al.*, 2016; Prasad & Junni, 2016; Amos, 2017; Liao *et al.*, 2017). The relationship between leadership style and organisational innovativeness was not fully investigated before the 1990s (Batistic *et al.*, 2017). Later, the research although limited was focused on the integration of leadership style with innovations (Uusi-Kakkuri *et al.*, 2016; Amos, 2017) especially at the individual level (Batistic *et al.*, 2017). Adoption of inclusive, democratic and transformational view of management (Uslua *et al.*, 2015) was the focus of the research conducted predominantly in the Western economies (Srivastava, 2016) with results suggesting a positive influence on organisational innovativeness (Jung *et al.*, 2003; Jung *et al.*, 2008; Gumusluoglu & Ilsev, 2009; Chen *et al.*, 2016). However, planned economies that are now in the process of transformation towards market economies are characterised by all possible leadership styles, some as a legacy of previous economic policies and others as the result of contemporary trends and Western countries' model. Decision to transform the economy and part with

socialism was done in a brief moment, however cultural and business environment could not have been changed overnight.

The Full Range Leadership (FRL) Theory was implemented in the study, constituting from transformational (Tfl), transactional (Tsl) and passive (Pl) leadership styles. Relatively few studies examine the FRL model in developing nations (Ryan & Tipu, 2013). Applying FRL model bridges the literature gap enabling more insights into results of former planned economy and leadership styles in the context of transitional economy.

CEO's leadership style, as internal factor, is a predictor of organisational innovativeness, which is important for achieving competitiveness. Furthermore, to enlighten the importance of external factors Contingency theory must be encompassed. Grounded on the theory, the CEO's perception of environment uncertainty is postulated as an important predictor for achieving higher organisational innovativeness. Fully understanding leaders' effectiveness can be possible only by a consideration of the environmental dynamics, while analysing the relationship between FRL leadership styles and innovation (Jansen *et al.*, 2009). Leaders have to be aware of environmental perception and create the capacity to change accordingly (Boal & Hoojberg, 2001). Crucial actors are transformative leaders who perceive the environment as dynamic and "generate a collective feeling" that innovation is a necessity (Jansen *et al.*, 2009). When the perception of

environment uncertainty is on the low level then the leaders will promote transactional leadership style and minimize innovative activities (Jansen *et al.*, 2009).

Based on the current literature, several research problems have been a motivation for this paper. Firstly, to the authors' knowledge, most of the studies to date have focused on examining the bilateral relationship between some of these variables in a single study rather than have had integrated approach through examining the relationship between all these variables simultaneously in one model. Only a few studies (Jansen *et al.*, 2009; Aslan *et al.*, 2011; Prasad & Junni, 2016; Liao *et al.*, 2017; Jia *et al.*, 2018) have been analysing the relationship between leadership styles from FRL theory and organisational innovativeness taking into account moderating-mediating effect of environment uncertainty. Secondly, if we consider the territorial affiliation of empirical research, there is a small number of studies that have examined the relationships between all three types of FRL theory and organisational innovativeness in the context of South-eastern European countries. Thirdly, there is no universal consensus about the relationship between transactional and passive leadership style and organisational innovativeness. Finally, in the past studies, small and medium-sized enterprises (SMEs) are usually in the focus as they are associated with greater innovativeness due to their flexibility, where the importance of large companies for the innovation is neglected. These limited and conflicting findings, as well as a rare experimental nature of previous studies in this research field prompt the present research to define aim accordingly.

The primary aim is to shed light on the importance of the perceived uncertainty level of company external environment as well as the CEO's leadership style with its role in driving innovativeness of medium and large organisations in Serbia.

The model, the paper is based on, should help to answer the following research questions:

R1: Should the CEO's perception of environment uncertainty be considered the driver of higher innovativeness at the organisational level?

R2: What is the relationship between leadership styles, namely: *Tfl*, *Tsl* and *PL*, and organisational innovativeness of medium and large organisations?

Thus, we answer earlier calls for a study of the effects of environment as an external factor on organisational innovativeness (Gumusluoglu & Ilsev, 2009). The additional contribution of this research is the analysis of leadership styles in FRL theory combined with the variables: environment uncertainty (Miller, 1993) and organisational innovativeness (Wang & Ahmed, 2004) in a single comprehensive model. This provides the opportunity to combine two perspectives into a hybrid one, following The Resource based theory and the Contingency theory. We expect that this state of mind, as the interplay of mentioned constructs into one model, will give a broader picture, better understanding and greater clarity about predecessors of organisational innovativeness.

This paper provides a theoretical and empirical contribution to innovation literature. Furthermore, a whole body of research focuses on one part of innovativeness (Gielens & Steenkamp, 2007) as either input dimension

(R&D, employee creativity, organisational culture etc.), or output dimension (specific innovations in product, service or process), while in this paper we address both dimensions, enabling a holistic approach to organisational innovativeness.

Partial Least Squares-Structural Equation Model (PLS-SEM) was developed, tested and validated to explain the relationship of environment uncertainty on organisational innovativeness as well as the relation between leadership styles and organisational innovativeness in Serbia. This study, therefore, sheds more light on the constructs and measures of FRL, environment uncertainty and organisational innovation appropriate for countries in transition. Consequently, the particular contribution is the application of the elaborate methodology in the context of a transitional economy that could pertain to all South-eastern European countries.

The paper is structured as follows: sections portraying recent literature on the relationship between environment uncertainty and organisational innovativeness as well as leadership styles and organisational innovativeness provide a theoretical framework of the research, followed by the methodology clarification and research framework development. Finally, the conclusions are presented with discussion and the implications of the research.

## **Environment Uncertainty and Organisational Innovativeness**

Organisations are open systems that must be in a constant interaction with the environment in order to survive and develop (Scott & Davis, 2015; Hatch, 2018).

Environment uncertainty (EU) refers to dynamism and complexity, as a degree of uncertainty the firm faces (Freel, 2005), or as a determinant for a firm's adaptability (Tuominen *et al.*, 2003). A dynamic environment is characterised by a rapid and dramatic change (Baron & Tang, 2011), generating more difficult decision-making process of an organisation (Yan & Yan, 2017) i.e. whether to adapt by innovation or not. Decision to incorporate innovative activities may not always produce a positive results, but the non-innovative company behaviour does not contribute to its growth. (Kicova, 2019). Further research into innovative mechanism of a firm's business reasoning subject to the environment uncertainty was required and thus it is analyzed in this paper. It is more likely that organisations operating in a highly dynamic environment innovate more than organisations operating in a less dynamic environment (Wang & Chen, 2010; Baron & Tang, 2011; Prajogo, 2016). The innovativeness is more beneficial for firms operating in competitive and dynamic markets (Jaworski & Kohli, 1993; Hernandez *et al.*, 2008; Boso *et al.*, 2013) than for firms that operate in a stable environment, where additional investment in innovation activities are insufficient (Jansen *et al.*, 2006).

Highly uncertain environment is characterised by a variety of unstable conditions, such as: volatile customer demands, radical technology innovations, strong competition, market instability, changing government regulations etc. As industrial environment uncertainty has the greatest influence on firm product innovation (Freel, 2005) it is the focus of our study. Industrial environment

uncertainty as subjective perception of the CEO, measures customers' and competitors' dynamism. Faster and more frequent launching of the competitors' products is, or relentless fluctuation in customers' needs and preferences are, the higher the degree of CEO's perception of industry uncertainty. Freel (2005) highlights that there is a negative relationship between competition uncertainty and product innovation, as well as the positive relationship between consumer taste changes and product innovation (Freel, 2005).

Organisational innovativeness, as a second variable of our model, is a multidimensional concept that refers to openness and the ability to introduce innovations (Hult *et al.* 2004, Golgeci & Ponomarov, 2015). Organisational innovativeness (*OI*) is becoming the single most important attribute in determining firm survival and success (Rubera & Kirca, 2012; Uzkurt *et al.*, 2012; Ackermann *et al.*, 2015). It could be formulated as an organisation's overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative behaviour and process (Wang & Ahmed, 2004).

Environment turbulence, especially in demand and technological tendencies, has a positive influence on organisations' innovativeness (Uzkurt *et al.*, 2012; Tuominen *et al.*, 2003). Significant associations between unstable external environment measured through diversity, dynamism, capacity, conflict, and the times of innovation adoption could be found in the literature (Subramanian, 1996). Furthermore, environment uncertainty was not only analysed through a direct effect on innovativeness but is used as a moderator or mediator. The positive moderating effects on different relations is divided: firm innovativeness - business performance (Tsai & Yang, 2013); entrepreneurial creativity - firm level innovation (Baron & Tang, 2011); product innovation - business performance (Prajogo, 2016); exploratory innovation - financial performance (Jansen *et al.*, 2006); innovativeness - export performances (Boso *et al.*, 2013). To the authors' knowledge, there is only one study which indicates negative moderating effects of environment uncertainty on relation: firm specificity in innovation - innovation value (Wang & Chen, 2010).

Encapsulating all presented results, use of different types of EU variable is present, as well as different concepts of examination, and thus EU can be antecedent or consequence of the innovativeness leading to mixed results.

In order to resolve the discrepancies in the literature, with a broader definition of organisation innovativeness, observing the sample of medium and large sized organisations in Serbia, the hypothesis was formulated as:

**Hypothesis 1:** *The CEO's perception of environment uncertainty positively relates to the higher level of organisation's innovativeness.*

### **Leadership Styles in South-Eastern Europe**

The different cultural and historical context of European countries should be investigated when considering different management systems and leadership prototypes (Brodbeck *et al.*, 2000). Two clusters as South-eastern and North-western part of Europe could be

identified having different preferred leadership styles (Koopman *et al.*, 1999). However, there is no consensus among authors as to what is the most preferred leadership style in Eastern countries, where one group of authors finds autocratic leadership style (Koopman *et al.*, 1999; Srivastava, 2016), other transactional (Brodbeck *et al.*, 2000; Liu *et al.*, 2011) and third transformational leadership style (Jung *et al.*, 1995; Bakacsi *et al.*, 2002) to be dominant.

Our paper focuses on the analysis of leadership styles in Serbia as part of South-eastern Europe. Increasing globalisation and market liberalisation resulted in the implementation of Western cultural dimensions (Brodbeck *et al.*, 2000), which also propagates unique leadership behaviour.

Opening up of the Serbian economy to foreign capital, enabled transmission of foreign business practice, including management styles. In 2017 in Serbian companies operating with 50+1 % of foreign capital 22.3 % of labour was occupied, contributing with 33.5% to total added value. Of all foreign capital, 78.2 % come from the European Union (Republički zavod za statistiku, 2019). Data supports an expectation of confirming western results regarding the relation between *Tfl* and innovation.

#### *Leadership Styles Based on Full-Range Leadership (FRL) Model*

Transformational leadership is considered to be the most effective (Curtis, 2018) and active form of leadership behaviour, transactional leadership focuses on medium effectiveness and activity, while laissez-faire leadership describes the least effective and most passive leadership behaviour.

Since the 1990s the *transformational* leadership style has been the focus of considerable research attention with its dual outcome. First is a more individual outcome, observed through the impact on individual and/or group, ensuring diversified pool of employees' performance measures: creativity (Sosik *et al.*, 1997; Khalili, 2016), productivity, collective cohesion empowerment (Jung & Sosik, 2002) follower cooperation, perceptions of work quality (Oberfield, 2014), as well as job and career satisfaction (Trottier *et al.*, 2008; Li & Yuan, 2017). The second is more overall outcome observed through the impact on the whole organisation, resulting in organisational performance (Jung *et al.*, 2010; Overstreet *et al.*, 2013; May-Chiun *et al.*, 2015) through knowledge management (Birasnav *et al.*, 2011) for the purpose of establishing supportive innovative climate (Jung *et al.*, 2003; Moynihan *et al.*, 2012).

Transformational leadership evolves inspiring followers by employing: inspirational motivation, idealised influence (attributed and behaviour), individual consideration, and intellectual stimulation (Bass & Avolio, 2004). From the innovative perspective, two crucial components of transformational leadership could be emphasised. First one is intellectual stimulation, which can help generate employees who question assumptions and reframe problems (Jung *et al.*, 2008) and seek innovative approaches in their work through champion innovations (Gumusluoglu & Ilsev, 2009) resulting in radical

innovations. The second component is idealised influence, portraying the leader as a role model (Jaiswal & Dhar, 2015) that is a catalyst of change and thus facilitates innovation.

Second leadership style is *transactional* leadership, considering manager as a supervisor (Uslua *et al.*, 2015) that delegates with detailed instructions and clear expectations with continuous performance assessment, leading to awards or corrective action (Taylor, 2017). Transactional leadership is characterised by contingent reward and management by exception (Antonakis *et al.*, 2003). Employing contingent reward implies identifying clear goals and expectations of a subordinate. The main criticism of this style is for not inspiring employees to exceed the outlined performance standards. Being more reactive than contingent reward, active management by expectation is characteristic of leaders constantly monitoring the processes and subordinate performance, for which they are responsible, and intervene at the earliest sign of a problem. Even more reactionary is passive management by exception indicating leaders who simply wait for something to go wrong. Aforementioned leadership dimensions of transactional style greatly limit creative and innovative behaviour by encouraging performance in the effective, already established, ways of conduct, while new solutions and ideas that prove inefficient will be penalised (Bass *et al.*, 2003). Therefore, instead of proactive action and higher growth aspiration, the focus of this leadership style is the efficiency that is pertained to maintaining the status quo, i.e. avoiding changing processes as long as they produce output. Thus, a formulation of an innovative-oriented strategy, flexibility in doing business or encouraging employees to collaborate and think creatively could hardly be a result of transactional leadership (Stock *et al.*, 2017).

The third style is *laissez-faire* leadership, which is a form of passive or avoidant leadership, being essentially a total absence of leadership or non-leadership. With such a leadership approach, feedback, rewards and involvement are non-existent, while decisions are slow or not taken at all, which can impact negatively on motivations and needs of the followers. Inactivity and disengagement are implemented by a leader that avoids making decisions, abdicates responsibility, and does not use its authority (Antonakis *et al.*, 2003). Ambiguous understanding of the roles, unclear responsibilities and work tasks result in the stressful work environment (Skogstada *et al.*, 2014), reflected in disrespectful, impolite and unmannerly behaviour (Harold & Holtz, 2015). However, this non-leadership could be desirable in some situations with employees feeling respected and autonomous (Yang, 2015).

#### *Leadership Styles and Organisational Innovativeness*

Analysing the influence of leadership on organisational innovativeness has been the focus of substantial research interest (Jung *et al.*, 2008; Sarros *et al.*, 2008; Garcia-Morales *et al.*, 2012; Chen *et al.*, 2013).

To have a positive effect on organisational innovativeness the leaders have to affect employees' behaviour and create favourable organisational culture (Unnu & Kesken, 2014) that motivates employees to experiment and realise creative outputs. Transformational

leaders are responsible for helping employees overcome their fears that are frequent due to a change of routine. Accordingly, employees are being transformed from risk averse to risk takers (Khalili, 2016), facilitating proactive behaviour (Li & Yuan, 2017) with experimental out of the box thinking (Sosik *et al.*, 1997). Furthermore, this type of leaders will determine growth and change strategy (Jung *et al.*, 2008; Derue *et al.*, 2011) which, undoubtedly, is the requirement for innovation development and implementation. Contemporary research has indicated the great innovative potential of this type of leadership as employees often develop a perception of innovation oriented organisational climate (Jaiswal & Dhar, 2015). Aforementioned directly positively affects individual creativity and growth of innovativeness at the team level (Chen *et al.*, 2013), that transcends to organisational innovativeness growth (Noruzy *et al.*, 2013; Raj & Srivastava, 2016). Moynihan *et al.* (2012) pointed out that pursuing innovation-oriented management propagating innovative oriented outcomes is a practice of transformational leadership. Plentiful research suggests a direct relationship between transformational leadership and organisational innovativeness: Tfl is being positively related to product innovation (Stock *et al.*, 2017); Tfl is positively related to both product innovation and service innovation, enabling market success (Gumusluoglu & Ilsev, 2009); Tfl is positively related to the growth of R&D expenditures and a number of patents obtained over the preceding 3 years (Jung *et al.*, 2003).

As transformational leadership is more likely to emerge in collectivist cultures (Gumusluoglu & Ilsev, 2009), the analysis of the influence of transformational leadership on the organisational innovativeness in the Republic of Serbia, as a less collectively oriented culture, poses a great research challenge. Based on the previously considered, the following hypothesis was formulated:

**Hypothesis 2:** *A proactive leadership style, such as transformational leadership, encourages greater organisational innovativeness.*

Analysing the influence of transactional leadership on organisation innovativeness has led to contradictory opinions. The negative influence of transactional leadership on creativity and innovativeness has been widely advocated (Bono & Judge, 2004; Pieterse *et al.*, 2010; Sethibe & Steyn, 2018). While founded on the open manager – subordinate communication, this style frequently induces counter-innovative effects (Jansen *et al.*, 2009). The locus of action space and creative – innovative problem - solving behaviour is constricted, whilst the behaviour of subordinates is being subject to penalties. When analysed from the aspect of team performance, the relationship between transactional leadership and organisation innovativeness, decreasing innovativeness potential among team members is suggested, as they are not expected to go beyond their team leaders' initial expectations (Liu *et al.*, 2011). Marginally, transactional leadership is advocated to have innovative character (Prasad & Junni, 2016) as effective allocation and coordination of tasks, can also lead to better employee creativity (Sanda & Arthur, 2017).

According to contemporary leadership literature, there is a gap present concerning the influence of transactional leadership on organisational innovativeness, which was motivated to formulating the next research hypothesis.

**Hypothesis 3:** *Transactional leadership style affects organisational innovativeness.*

The laissez-faire leadership and its effect on subordinates and organisational performances have rarely been studied (Skogstada *et al.*, 2014). However, in recent research the negative influence on organisational climate has been suggested. The asocial relationship among employees, resisting teamwork, lack of motivation, as consequences of laissez-faire leadership, is disturbing new idea development, as knowledge and information are not being shared. Employees in such organisational climate are not interested in opinions or perspectives of others in problem-solving that oppresses creativity. These employees will reduce their work effort, quality of their work, job performance, and sense of commitment (Porath & Pearson, 2013; Harold & Holtz, 2015). This will have a domino effect that ultimately hampers organisational innovativeness. However, there are opposite conclusions drawn, suggesting that passive leadership can support innovation creation due to higher employees' freedom (Ryan & Tipu, 2013). The existence of controversial opinions regarding the relationship between passive management and organisations innovativeness opens an avenue for research that was conducted in this study. Therefore, it is proposed:

**Hypothesis 4:** *The passive leadership style influences the organisational innovativeness.*

## Methodology

A survey based on Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 2004) expanded with two more variables, namely: environmental uncertainty (Miller, 1993) and organisational innovativeness (Wang & Ahmed, 2004) was distributed among the managers of higher levels, responsible for business strategy implementation. The practice has shown that managers in Serbia are short-term oriented and focused only on the survival of the organisation (Vukonjanski *et al.*, 2012). That is why it is important to analyse the most adequate leadership style to induce innovative behaviour. Hitherto, the topic of transformational leadership was primarily analysed in the educational sector (Terek *et al.*, 2015) and the context of acquisition effects on organisational performance in Serbia (Babic *et al.*, 2014), while the general profound analysis of the economy was left unexplored.

Medium and large-sized companies were chosen for the analysis because of conflicting results demonstrated concerning their innovativeness. Many authors perceived them as unattractive due to the high levels of bureaucracy that leads to reduced innovative potential (Strugar Jelaca, 2016). Furthermore, medium and large-sized enterprises in Serbia do not focus on innovation among strategic goals (Boskovic *et al.*, 2016). While other authors suggest that large organisations have greater access to diversified employees' expertise, as well as larger funds that enables taking higher risks leading to encouraging innovative organisational climate (Schilling, 2010; Tomic *et al.*, 2016).

The research we conducted focused on medium and large enterprises. In Serbia, there were 2.372 medium and 521 large enterprises operating in 2017, according to the Serbian Business Registers Agency (national, governmental body). Following similar research, we focused on surveying 10 % of the population, which led us to send 275 questionnaires to CEOs during the first and second quarter of 2017. For this purpose we used key informant approach, paying attention to the sectoral and territorial distribution of the companies. Each respondent is the CEO representing a single company. In total 159 responses were valid, leading to an effective response rate of 57.82 %. The obtained sample size (159) was sufficiently large to conduct a statistical study based on the PLS-SEM approach.

The respondents were predominately highly educated male managers of a company in the processing sector, registered as limited liability company. The profile of respondents was drowned upon the fact that 62.26 % were male, while 37.74 % were female, with 47.2 % having university diploma, 37.9 % acquired master diploma, leaving managers with PhD at the margin. Businesses surveyed belonged to a variety of industries, mainly: processing industry (34.6 %), wholesale and retail trade (14.5 %), agriculture (11.9 %), construction (7.5 %) and professional, scientific and technical activities (6.9 %), while other sectors were represented with less than 5 % of a total sample. Based on the legal structure 57.2 % were limited liability company, while 23.3 % are joint stock companies, 15.4 % public companies and less than 5 % were other legal structures.

All theoretical concepts used in this research were taken from prior studies providing a theoretical rationale. To analyse *Environment Uncertainty (EU)*, five items were adapted from Miller (1993), *Organisational Innovativeness (OI)* was measured using nine items modified from Wang and Ahmed (2004), while the analysis of different leadership styles, namely: transformational (*Tfl*), transactional (*Tsl*) and laissez-faire or passive leadership (*PL*) was conducted based on standardized Multifactor Leadership Questionnaire (MLQ-5X) from Bass & Avolio (2004) with 36 items. All measures in the questionnaire were assessed with five-point Likert scales.

For the examining relations in the presented model, hierarchical component approach was implemented (Becker *et al.*, 2012). *Environment Uncertainty (EU)*, *Organisational Innovativeness (OI)* and *Passive Leadership (PL)* were presented as unidimensional reflective constructs, while *Transformation Leadership (Tfl)* and *Transactional Leadership (Tsl)* were conceptualised as multidimensional, formative higher-order constructs. *Tfl* consists of five reflective lower-order constructs: inspirational motivation (*IM*), idealised influence attributed (*Ila*), idealized influence behaviour (*Ilb*), individual consideration (*IC*) and intellectual stimulation (*IS*). *Tsl* consists of three reflective lower-order constructs: contingent rewards (*CR*), active management-by-exception (*AMbE*) and management-by-exception passive (*MbEP*). The conceptual model is presented in figure 1.

Following Becker *et al.* (2012), the repeated indicator approach was applied for their estimation. Thus, higher order constructs were specified as "latent variables that

represent all the manifest variables of the underlying lower-order latent variables” (Becker *et al.*, 2012), i.e. *Tfi* was specified using 20 manifest variables of its five lower-order constructs, while *Tsl* was specified using 12 manifest variables of their three underlying lower-order constructs.

As the result of the repeated indicator approach, the manifest variables were used twice, for lower-order constructs, as well as for higher-order constructs. After setting the model, it was analysed using the SmartPLS software.

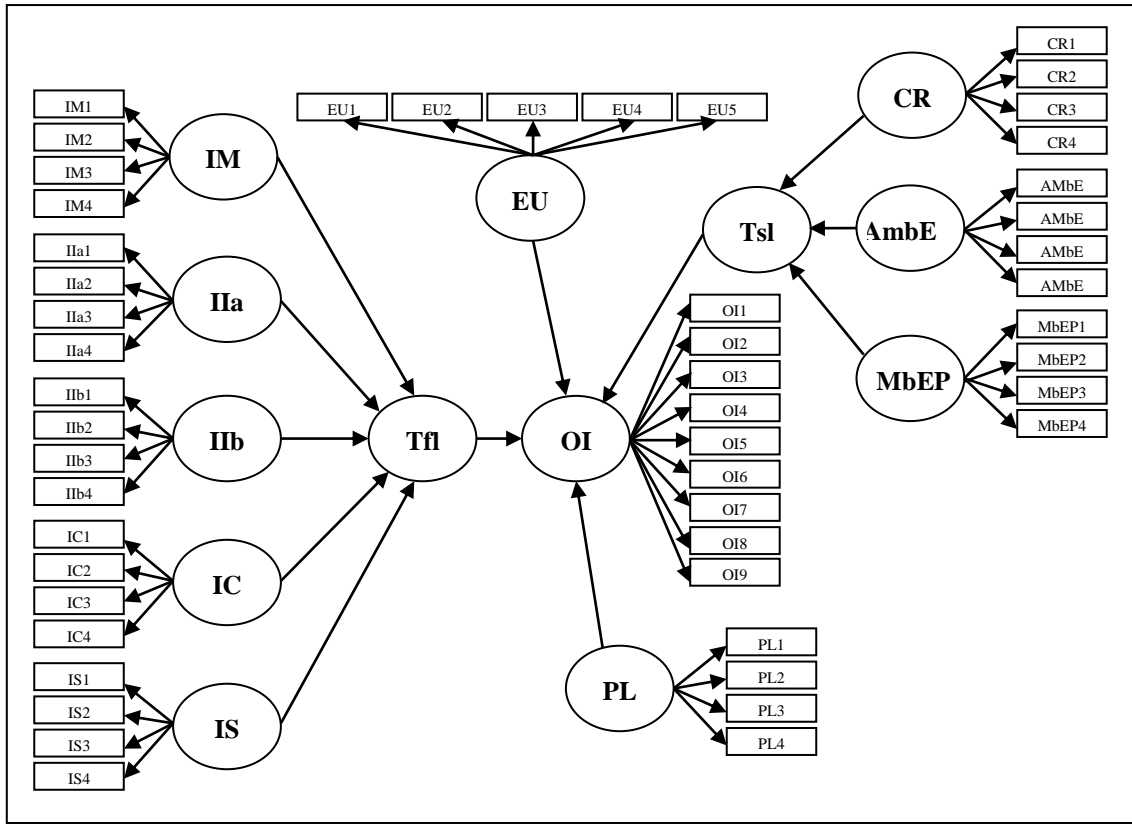


Figure 1. Conceptual Model

Following Hair *et al.* (2012), for all reflective constructs, we examined individual indicator reliability, internal consistency reliability, convergent validity and discriminant validity. Individual indicator reliability was analysed by checking the standardised indicator loadings. Their values should be higher or equal to 0.70, whereby in exploratory studies loadings of 0.40 could also be accepted (Hair *et al.*, 2013). However, as stated in certain studies (Sarstedt *et al.*, 2014) the item with loading higher than 0.6 can be retained. Thus, several items have been eliminated from our model (EU<sub>4</sub>, EU<sub>5</sub>, OI<sub>1</sub>, IIa<sub>1</sub>, IIb<sub>1</sub>, IC<sub>2</sub>, IC<sub>3</sub>, IS<sub>1</sub>, IS<sub>2</sub>, CR<sub>1</sub>, CR<sub>2</sub>, CR<sub>3</sub>, CR<sub>4</sub>, AmbE<sub>2</sub>, AmbE<sub>3</sub>, MbEP<sub>3</sub>, PL<sub>1</sub>, and

PL<sub>2</sub>) presented with loadings below the mentioned value. Furthermore, the whole *Contingent Reward* construct was excluded from the analysis. Upon the required reduction of the model and additional testing, internal consistency reliability and convergent validity were examined by analysing the obtained values of composite reliability and average variance extracted (AVE). In accordance to prevalent literature (Hair *et al.*, 2012; Hair *et al.*, 2013), composite reliability and AVE had satisfactory levels for all reflective constructs (composite reliability > 0.70 and AVE ≥ 0.50) presented in Table 1.

Table 1

Reliability Validation of the Reflective First-Order Constructs

ATTRIBUTES	Loadings	AVE	Composite reliability
- <i>Environment Uncertainty (EU)</i>		0.668	0.857
EU1 customers' needs	0.827		
EU2 competitor business strategy	0.885		
EU3 launching of competitive product	0.733		
- <i>Organisational Innovativeness (OI)</i>		0.619	0.928
OI2 customer perception of product novelty	0.779		
OI3 products put us up against new competitors	0.769		
OI4 more innovative products in 5 years	0.860		
OI5 faster in bringing new products into the market	0.838		
OI6 great speed production changes	0.847		
OI7 sig. future investments in new production methods	0.667		
OI8 new manufacturing process	0.809		
OI9 constantly improving our business process	0.702		
- <i>Inspirational Motivation (IM)</i>		0.500	0.797

ATTRIBUTES	Loadings	AVE	Composite reliability
IM1 optimism	0.632		
IM2 enthusiasm	0.808		
IM3 vision	0.732		
IM4 believe in object realisation	0.639		
- Idealised Influence Attributed (IIa)		0.604	0.819
IIa2 team benefit	0.665		
IIa3 respectful behaviour	0.775		
IIa4 trust	0.877		
- Idealised Influence Behaviour (IIb)		0.570	0.798
IIb2 goal achievements commitment	0.777		
IIb3 moral and ethics	0.658		
IIb4 common mission	0.822		
- Individualised Consideration (IC)		0.725	0.840
IC1 training others	0.797		
IC4 help others develop	0.903		
- Intellectual Stimulation (IS)		0.652	0.789
IS3 guiding others towards different perspective	0.835		
IS4 suggest new aspects	0.779		
- Active Management by exception (AmbE)		0.644	0.783
AmbE1 focused on irregularities, errors and exceptions	0.830		
AmbE4 attention to failures	0.774		
- Passive Management by exception (MbEP)		0.508	0.754
MbEP1 no interference until problem is serious	0.701		
MbEP2 react only when things go wrong	0.785		
MbEP4 react when problem is chronic	0.644		
- Passive Leadership (PL)		0.704	0.826
PL3 avoid making decisions	0.827		
PL4 postponing urgent questions	0.851		

Discriminant validity was tested with the use of the Fornell-Larcker criterion (Hair *et al.*, 2012). In this regard, each construct’s square root of AVE was higher than its

correlation with another construct (Table 2), confirming the establishment of discriminant validity.

Table 2

**Discriminant Validity Assessment Fornell-Larcker Criterion**

	EU	OI	IM	IIa	IIb	IC	IS	AmbE	MbEP	PL
EU	<b>0.817</b>									
OI	0.138	<b>0.787</b>								
IM	-0.087	0.451	<b>0.706</b>							
IIa	-0.053	0.153	0.311	<b>0.777</b>						
IIb	-0.095	0.245	0.605	0.286	<b>0.755</b>					
IC	-0.085	0.277	0.324	0.123	0.525	<b>0.851</b>				
IS	-0.159	0.119	0.259	0.157	0.331	0.422	<b>0.808</b>			
AmbE	-0.009	0.050	0.151	0.299	0.070	0.077	0.073	<b>0.802</b>		
MbEP	0.140	-0.010	-0.115	0.023	-0.199	-0.161	-0.226	0.277	<b>0.712</b>	
PL	0.018	-0.262	-0.167	0.045	-0.225	-0.297	-0.270	-0.030	0.182	<b>0.839</b>

However, bearing in mind an “unacceptably low sensitivity” of this approach, for assessing the discriminant validity we also relied on HTMT criteria, “based on a comparison of the heterotrait-heteromethod correlations

and the monotrait-heteromethod correlations” (Henseler *et al.*, 2015). As presented in Table 3, all comparisons satisfied the 0.90 threshold. Thereby, according to the HTMT<sub>90</sub> criterion, discriminant validity was achieved.

Table 3

**Heterotrait-Monotrait Ratio (HTMT)**

	EU	OI	IM	IIa	IIb	IC	IS	AmbE	MbEP	PL
EU										
OI	0.159									
IM	0.124	0.574								
IIa	0.139	0.202	0.409							
IIb	0.163	0.298	0.877	0.414						
IC	0.129	0.379	0.463	0.201	0.820					
IS	0.255	0.176	0.470	0.290	0.636	0.743				
AmbE	0.099	0.129	0.405	0.504	0.310	0.155	0.166			
MbEP	0.214	0.087	0.236	0.163	0.366	0.287	0.466	0.565		
PL	0.129	0.349	0.324	0.103	0.387	0.487	0.532	0.133	0.335	

When assessing the appropriateness of formative higher-order constructs (Tfl and Tsl), following Becker, Klein and Wetzel (2012), we paid attention to path coefficients between these constructs and their lower-order constructs. As presented in Figure 2, all path coefficients in the case of Transformation Leadership (IM, IIa, IIb, IC and IS), as well as two path coefficients in the case of Transactional Leadership (AMbE and MbEP) were positive and significant with p lower than 0.05. In addition, inner VIF values related to these lower order constructs were below 5.

### Results

In Figure 2 the obtained results, including PLS-SEM path coefficients are presented with their significance levels

and R<sup>2</sup> values for three constructs. The R<sup>2</sup> values for formative higher-order constructs (*Tfl* and *Tsl*) equalled 1, as the result of the repeated indicator approach. On the other hand, the R<sup>2</sup> value for *OI* was 0.227.

The analysis of lower-order constructs for two formative higher-order constructs indicated that all path coefficients were positive and significant at p<0.05. Furthermore, in the case of the *Transformation Leadership* the highest one was recorded at *Inspirational Motivation* (0.438), while at *Transactional Leadership* it was *Passive Management by exception* (0.736). Both formative constructs affected *Organisational Innovativeness*, whereby significant positive effect was recorded only in the case of *Transformation Leadership* (0.386).

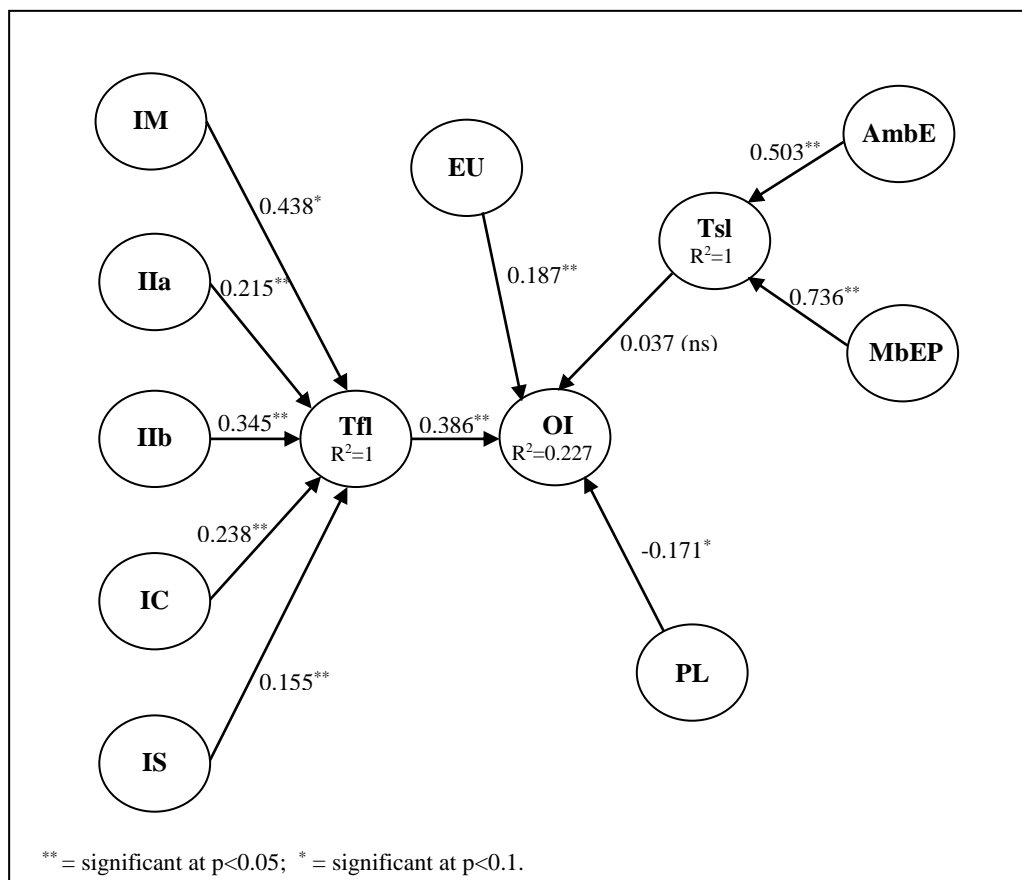


Figure 2. Path Coefficient Estimates

Moreover, *Organisational Innovativeness* was positively affected by *Environment Uncertainty* (0.187) at p<0.05 and negatively by *Passive Leadership* (-0.171) at p = 0.051.

### Discussion and Conclusion

To extend understanding of how medium and large sized companies achieve higher innovativeness, the present study examined the role of its antecedents as: environment uncertainty and three leadership styles from FRL theory in the context of transitional economy. Looking at the relationship among mentioned variables we responded to the previous calls for a study of the effects of environment as an external factor on organisational innovativeness (Gumusluoglu & Ilsev, 2009) on one hand and on the other

to analyse insufficiently researched relation leadership – organisational innovativeness (Batistic *et al.*, 2017).

The need for the analysis of the stated relations arises from the statements that unfavourable business conditions are a common attribute of all South-eastern European countries, and that is why fostering innovation in all organisations is crucial for the growth of the whole economy. Even though, innovations are generally neglected by the organisations in these countries (Gumusluoglu & Ilsev, 2009). Furthermore, the business environment of transitional economies of South-eastern Europe historically shaped the leadership style as: rigid, based on a clear and strict hierarchy that did not require manager’s inspiration or employee’s freedom to develop creatively like in Western European countries. In the



countries of the North-west European cluster, management system emphasis on future orientation and achieved status in an uncertain environment, while in the South-east European cluster emphasis is placed on assertiveness, power distance and ascribed status with uncertainty avoidance (Koopman *et al.*, 1999; Brodbeck *et al.*, 2000). Western managers operating in capitalistic system can make decisions formulating long-term strategies and plans while in transition, there could be no quick solutions with the long run positive effect. Based on the differences above, in North-western Europe, innovatively oriented leadership styles have been present, such as participatory, inspirational, and team-oriented leadership. In contrast, leaders in South-east Europe prefer supervision thereby implementing more autocratic leadership style (Brodbeck *et al.*, 2000). Presently, a more flexible management system is required in these countries, allowing guidance to creative thinking. In such business context, passive leadership style should transform into more active style (Bobera *et al.*, 2017), such as transformational leadership that is crucial to modify employee's mindset towards a more open-minded and innovative behaviour.

The elaborate analysis has empirically supported three out of four research hypotheses. Firstly, based on the results, it could be suggested that environment uncertainty measured by the CEO's perception of competitor and customer dynamism is a significant predictor of organisational innovativeness.

Obtained results substantiate the findings of numerous researches, supporting the notion of uncertainty encouraging innovativeness (Naranjo-Gil, 2009; Uz Kurt *et al.*, 2012; Boso *et al.*, 2013; Tsai & Yang, 2013). When environment uncertainty such as difficulty to predict customer behaviour articulated through preferred product characteristics, satisfactory quality, price etc., as well as competitors' response, is perceived by leaders as high they are more receptive to innovation (Jaworski & Kohli, 1993).

Results of our analysis indicate that the innovation is higher or more diverse in firms that are faced with stronger market rivalry and more volatile customer preferences and needs, corresponding to Boso *et al.* (2013) and opposing Freel (2005) that concludes the innovations prevail in more certain competitive environment, or Jansen *et al.* (2009) that failed to find a moderating effect of the environment uncertainty on leadership style – innovation relation. The discrepancy in results is most probably caused by a different conceptualisation of innovation. In this paper, innovation was scrutinised through different types of innovation, not just product innovations. Additionally, the distinction between radical and incremental innovation has not been made. Therefore, companies i.e. CEOs, responding to competition and/or consumer dynamism, generate decisions whether to conduct process innovation to be more cost effective, or product innovation to differentiate i.e. acquire a competitive advantage.

Secondly, the results we obtained suggest that transformative leadership style is a significant predictor of organisational innovativeness that has been suggested in the literature (Jung *et al.*, 2003; Gumusluoglu & Ilsev, 2009; Aslan *et al.*, 2011; Stock *et al.*, 2017). Leaders adopting transformational style encourage employees to express their creative potential and take a risk of

introducing novelties with trial and error behaviour preferred (Liao *et al.*, 2017).

Thirdly, based on the analysis it has been suggested that transactional leadership style does not have a statistically significant influence on organisational innovativeness (Aslan *et al.*, 2011). Bass *et al.*, (2003) assert that CEOs that implement transactional leadership style seldom motivate employees to express their creative potential because they “establish clear standards and expectations of performance”.

Moreover, contrary to standard dimensions of transactional leadership style (CR, AmbE, MbEP), this study has distinguished only two dimensions of active (AmbE) and passive management by exception (MbEP) that are characteristic for controlling and non-reactive leadership. In this research, the Tsl construct does not enclose contingent reward (CR) dimension that could stimulate higher employees' effort and thus spur more organisational innovations (Prasad & Junni, 2016). In other words, constant control and error averting are not possible in the context of innovation desirability. Hindering innovative potential, those characteristics of leadership inevitably led to conclusions of transactional leadership not having a significant effect on organisational innovativeness.

Lastly, it is suggested that laissez-faire leadership influences organisational innovativeness. Previously mentioned leadership style is often categorised as non-leadership which does not encourage creative thinking and collaboration and thus is not innovatively oriented. This research finds sufficient empirical data that suggests negative influence of passive leadership on organisational innovativeness, which is in full accordance with the results of numerous studies (Porath & Pearson, 2013; Harold & Holtz, 2015).

Results of this study contribute to the leadership and innovation literature from a theoretical and empirical perspective. Firstly, we associated the resource based theory with contingency theory of the firm by “moving beyond the often implicit assumption” (Boso *et al.*, 2013) through integrating the environment uncertainty, FRL theory and organisational innovativeness constructs in a single framework. This study's results indicate that environment uncertainty, as an external factor, and leadership style, as an internal factor, are predictors of firm innovativeness. Besides, it is suggested that transformational leadership style encourages innovativeness, while passive leadership style suppresses innovativeness. Therefore, in the study organisational innovativeness has been explained from both micro and macro aspects. Investigating the effects of environment uncertainty gives the macro aspect of the phenomenon, while executive managers' behaviour gives a perspective of micro-management viewpoint. Secondly, the present study is the first to use such a comprehensive framework on the sample of middle and large-sized companies in a transition economy, to the best of our knowledge. Development, testing and validation of a complex model are a novelty and present a significant contribution to the literature of organisational innovativeness. Thirdly, a particular contribution is the conceptualisation of the second order variables as formative constructs, which required application of SmartPLS. To the authors' knowledge, this is the first time

that *Tfl* and *Tsl* have been presented as a formative higher order construct because of which SmartPLS software was used. Correspondingly, significant practical implications and contributions emerged from this study.

### Managerial Implications

Application of the elaborate methodology in the context of a transitional economy that could pertain to all South-eastern European countries is an additional contribution. The recommendations for executives in these countries are: 1) organisation should focus on business or product portfolio innovation when the competition is innovating and/or customer preferences are changing (Boso *et al.*, 2013) in order to maintain or gain competitive advantage; 2) in such situation manager should employ transformational leadership style, as it is democratic and collaborative leadership style, where managers create innovative organisational climate (Jaiswal & Dhar, 2015) and outline innovative business strategy (Derue *et al.*, 2011), that encourages all employees to take a risk and think out of the box (Sosik *et al.*, 1997). Those recommendations are particularly important because managers in South-eastern Europe have adhered to an authoritative leadership style. Aforementioned indicates that organisation will profit from innovativeness if leaders perceive their industrial environment as uncertain and thus implement transformative leadership style, as opposed to transactional (Prasad & Junni, 2016) or passive. Likewise, leaders that perceive the industrial environment as stable generally focus less on innovative activities due to the cost

increases and possible uncertainty creation (Freel, 2005) in terms of customer acceptance owing to traditional orientation and current offer loyalty. Understanding the CEO's behaviour should help medium and large companies gain beneficial effects of innovation activity.

### Limitations and Future Research Directions

While the results of the study provide empirical support for the hypotheses tested, there are, however, limitations to the current analysis. Although we believe that our data can be generalised to the transitioning economies, we are unable to expand our results beyond Serbia. Therefore, the specific geographical context and the size of the sample limit the possibilities of generalisation of the present findings and it would be useful to replicate this study in other transition economies in the region of South-eastern Europe. Furthermore, the results of the study are entirely based on the cross-sectional data provided by a single respondent at a single point in time. While common in research, this approach might lead to reverse causality (Glavas, 2016) and common method bias. Reverse causality is possible as executives' subjective perception of industrial environment uncertainty could be anywhere in between too optimistic or too pessimistic. Moreover, future studies should examine the change of variables (environment uncertainty, leadership styles and organisational innovativeness) in a longer time period, enhancing qualitative and quantitative sampling resulting in a more objective and better investigation of the relationship between research variables.

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