

**Intellectual agility and Innovation in Micro and Small Businesses: The Mediating Role of Entrepreneurial Leadership**

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**Abstract**

The purpose of this research is to examine the relationship between intellectual agility, entrepreneurial leadership (measured through future orientation and community building) and the innovativeness of micro and small businesses in an efficiency-driven economy. Building on nexus of entrepreneurial leadership, human capital and economics of innovation literature, a theoretical model has been developed and tested empirically on a sample of 110 micro and small businesses from Serbia, a country with an emerging efficiency-driven economy by means of the structural equation modelling. Intellectual agility of employees positively influences the innovativeness of micro and small businesses, but this effect is strongly mediated through entrepreneurial leadership. Future orientation contributes significantly to innovativeness and the ability to build community links; in turn it is affected by the intellectual agility. The main theoretical contribution of this research lies in the emphasized role of intellectual agility of employees in micro and small businesses' innovativeness, in the context of the emerging concept of entrepreneurial leadership. The findings are useful for managers and owners of micro and small businesses in their efforts to enhance the innovation of their firms, which will rely on the potential of intellectual agility of employees and the central role of entrepreneurial leadership in the future.

**Keywords:** Intellectual agility of employees, Innovativeness, Micro and Small Businesses, Entrepreneurial Leadership, Future Orientation, Building Community.

## **Introduction**

In most world economies, small and medium sized enterprises (SMEs) account for the vast majority of firms, job creations, and market dynamism. Recent research on the behaviour of these entities has devoted particular attention to their activities based around innovation. The evidence compiled over the years suggests that innovation flourishes from the seeds of creativity (Stojcic et al., 2018) and knowledge (Santos-Rodrigues et al., 2010) and is found within (Dabić et al., 2019) and outside (Brink, 2017; Tobiassen and Pettersen, 2018) of organizations. Among the internal drivers of innovation, considerable attention has been paid to knowledge (Radas and Božić, 2009), business intelligence (Huges, 2009; Mohsin et al., 2015; Agostino et al., 2013; Ali et al., 2017) and the personal values of staff and managers (Potocan and Nedelko, 2013; Letonja et al., 2016).

One of the relatively unexplored human capital components in terms of micro and small businesses' innovativeness is that of intellectual agility. Intellectual agility is a facet of intellectual capital that is often considered a synonym for the wider concept of organizational agility. While organizational agility refers to the ability of firms to create new value by adjusting organizational strategies and resources (Cegarra-Navarro and Martelo-Landroguez, 2020; Grass, et al., 2020), intellectual agility is about creating an appropriate environment within organizations in which staff can invest their efforts in the formulation of responses to organizational challenges through the modification of existing structures and the creation of innovative strategies (Sambamurthy et al., 2003; Khalifa et al., 2008; Cegarra-Navarro and Martelo-Landroguez, 2020). Analysis of the Web of Science and Scopus databases reveals that organizational agility has been the subject of substantial analysis within management but, somewhat surprisingly, only a few studies have focused on intellectual agility of employees, with research on its role in micro and small businesses innovation practically non-existent.

Apart from intellectual agility of employees, the innovativeness of SMEs depends on the leadership styles and strategies of their managers (Nedelko and Potocan, 2013). Several studies point to entrepreneurial leadership (EL), which is the ability of managers to mobilize the efforts of their staff by creating visionary scenarios and assembling and motivating a committed community of participants (Hmieleski, Cole, and Baron, 2012; Huang et al., 2014), as relevant in the context of SMEs. This literature is mainly concerned with the dimensions and roles of entrepreneurial leaders (Huang et al., 2014), factors affecting EL (Soomro et al., 2019), and the effects of EL on organizational performance (Carpenter, 2012; Currie et al., 2008; Hansson and Mønsted, 2008; Kansikas et al., 2012; Leitch et al., 2013; Harrison et al., 2018; Miao et al., 2019; Yang et al., 2019) and on innovative work (Renko et al., 2015; Bagheri, 2017) but lacks a link to intellectual agility of employees. Additionally, not enough attention is given to the innovativeness and innovative agility of SMEs.

This points to a clear gap in academic literature when it comes to the relationships between intellectual agility of employees, EL, and innovativeness in the context of SMEs, and particularly in the content of micro and small sized firms. Fragmented evidence suggests that both the intellectual agility of employees and EL may both be relevant to the innovativeness of micro and small businesses. Scholarly literature, however, **neglects to answer two important questions. Firstly, in what ways do the intellectual agility of employees and EL influence the innovativeness of micro and small businesses? Secondly, does the intellectual agility of employees, when combined with EL, constitute a mutually reinforcing relationship?** Our study fills this gap by developing and empirically testing the model of the relationship between intellectual agility of employees and micro and small businesses' innovativeness, with two dimensions of EL (future growth and building community) acting as mediator variables. To the best of our knowledge, this is the first study addressing these issues in a general organizational context and in the context of micro and small businesses in particular.

Our study extends the existing body of knowledge by offering another wider and more comprehensive perspective of intellectual agility. We argue that intellectual agility within an organization resides within employees and within their managers. The former refers to **the ability of employees to shift their modes of thinking, search for new information, and come up with novel solutions for present and prospective problems.** The latter concerns the ability of managers to create an environment that facilitates the innovation efforts of the organization. While existing studies have only focused on this specific dimension of intellectual agility, which can also be considered EL, we argue that such leadership mediates the relationship between the intellectual agility of employees and the innovative performance of organizations. Focusing on two key components of EL - future orientation and community building - we develop a model that also takes into account the influence of future managerial orientations towards community-building practices. No study, to the best of our knowledge, has thus far attempted to address these issues.

Another area in which this study makes a significant contribution relates to its geographical focus. The literature on SMEs' innovativeness is mainly focused on advanced, knowledge-driven economies. The building of innovation competencies and capabilities is often more challenging for enterprises in emerging, efficiency-driven, economies with weak innovation systems and a lack of indigenous organizational innovation potential (Hollanders et al., 2019). Our research focuses on the 'catching-up' of European countries as they transition from an efficiency-driven economy towards a knowledge-driven economy, such as Serbia. The recent European Innovation Scoreboard (Hollanders et al., 2019) ranks Serbia as a top innovation performer in terms of SME innovativeness among countries whose innovation performance falls below the EU average. Our findings will thus provide practical implications for all those policy makers interested in the relationship between intellectual agility, EL and

micro and small businesses innovativeness in general, and in catching-up economies in particular.

This research thus makes three significant contributions. Firstly, this study highlights the role of intellectual agility in micro and small businesses' innovativeness, thereby extending our empirical knowledge regarding the determinants of innovation in SMEs. Secondly, the study examines the interdependence of relationships between intellectual agility, EL, and innovativeness. While the theoretical case for the contribution to both intellectual agility and EL in terms of micro and small businesses' innovativeness is intuitively appealing, there are no studies on this matter. Our study not only addresses these issues but examines whether or not EL acts as a mediator in this process. Thirdly, the focus of study on the innovativeness of micro and small businesses in efficiency-driven economies has practical implications for practitioners and policy makers in all those countries striving to build knowledge and innovation-driven competitiveness.

The paper is structured as follows. In the next section, an overview of literature framework is given in order to point out the importance of the phenomenon of intellectual agility as a component of human capital and its role in SME innovativeness. A discussion of the theoretical background provides evidence of the importance of entrepreneurial leaders for micro and small businesses innovativeness, with an emphasis on the two key roles of entrepreneurial leaders: future orientation and building community. The next section provides the research methodology and the data analysis. Finally, the research findings and their theoretical and practical implications are explained in the last section, with a focus on the directions for future research.

### **Theoretical Framework and hypotheses**

SMEs are often referred to as the main generators of economic growth (Sawaeen and Ali, 2020). In an increasingly knowledge-driven world, their success and survival depends on their ability

to engage in the discovery, experimentation, and development of new technologies, products/services, production processes, absorptive capacity, and organizational structures (Khalifa et al., 2008; Rhee et al., 2010; Dabić et al., 2019; Fakhra Manesh et al., 2020; Vlačić et al., 2019) These capabilities, often referred to as innovativeness (Santos-Rodrigues et al., 2010) are considered as strategic resources that link the embodied innovation potential of organizations with the outputs of the innovation process. As an intangible resource, innovativeness resides within the knowledge of organizational human resources. The nurturing of the intellectual abilities of staff enterprises can thus convert knowledge into new products, services, or processes required by the market (Mohsin et al., 2015; Demartini and Beretta, 2020).

The importance of knowledge management has been recognized for more than three decades in academic literature. While knowledge resides in organizational human capital, the real challenge lies in the ability of organizations to increase the stock of individual knowledge and to utilize it in the value creation process (Bontis et al., 2002). The importance of the latter has been recognized through approaches such as the resource-based view (RBV) and dynamic capabilities (DCs). Under RBV, the rare, difficult to imitate, and valuable resources within an organization (such as knowledge and skills of human capital) are what distinguishes successful organizations from unsuccessful ones (Barney, 1991). DCs are more focused on the understanding of the ways in which organizations change and upgrade their resources (Teece et al., 1997). This takes place through a distinctive set of dynamically evolving resources. These are known in scholarly literature as dynamic capabilities.

DCs refer to routines and activities such as sensing, seizing, and transforming. They facilitate the identification and generation of opportunities, adaptation to changing environments, and the upgrading of existing resources. They are essential to an organization's ability to recombine and reconfigure knowledge within existing capabilities in order to develop

new, higher level resources (Teece et al., 1997; Chirico and Salvato, 2008). In uncertain environments, DCs define one's ability to innovate, adapt to new circumstances, and outperform rivals (Oliva et al., 2019).

The concept of DC is closely related to the concept of agility (Dove, 1999; Oliva et al., 2019). Over the last few decades of the 20<sup>th</sup> century, agility has emerged in scholarly literature on management as a concept with which to explain a company's ability to rapidly change and disrupt environments in a flexible and speedy manner (Singh et al., 2013). The entry of this concept into popular discourse has coincided with intensified competition and transformation in business environments, putting immense pressure on organizations (Dove, 1999). From this perspective, the concept refers to the agility of organizations as a whole, including the process of organizational adaptation and the redeployment of strategic resources within the value creation process (Akgün et al., 2012; Serrador and Pinto, 2015; Teece et al., 2016; Chan et al., 2018). However, organizational agility literature is predominantly concerned with organizations' responses to external processes, resulting in a lack of proper explanations when it comes to underlying processes.

Agyapong et al. (2020) assessed the links between social capital, innovation, and the performance of SMEs in growing economies, utilizing data from Ghana. The study specifically sought to observe the impact of innovation on the relationship between social capital and performance. This research determined that social capital does indeed have a positive effect on the performance of SMEs in Ghana, suggesting that higher levels of social capital is likely to improve business performance. The direct impact of social capital and innovation was also observed and the hypothesis that there was a significant and positive relationship between social capital and innovation in SMEs was confirmed.

The above suggests that the knowledge and methods for its extension and upbringing to higher levels are both essential when it comes to an organization's ability to innovate. Both of

these pertain to organizational human capital, which means that understanding the agility of human capital is key to understanding organizational agility as a whole. This form of agility, known as intellectual agility, is a relatively novel concept that has been considered synonymous with organizational agility for a long time. As a novel concept, it lacks proper definition in academic literature. Existing definitions refer to the management of the stock of organizational knowledge stored within individuals and groups (Crossan et al., 1999). To this end, intellectual agility can be considered the creation of feed-forward incentives for individual learning in terms of changes in structure, systems, products, strategy, procedures, and culture but also feed-backward incentives for organizational systems, structures, and strategies on individual and group learning (Bontis et al., 2002; Ravichandran, 2018).

The above suggests that to combat challenges, organizations need to create appropriate incentives for their employees to adapt existing structures and develop novel organizational strategies (Cegarra-Navarro and Martelo-Landroguez, 2020). The importance of an appropriate environment for the maximization of employee creativity and effort has been previously recognized in early knowledge management literature. Bontis et al. (2002) observed that employees' perceptions of the worthiness of their ideas for management and organization (feed-backward incentives) act as an important trigger of employee efforts when it comes to improving knowledge and skills, developing feelings of confidence and competence, cultivating intrinsic motivation for addressing challenges, and pushing forward organizational boundaries (feed-forward incentives). Empirical studies have largely confirmed that the ability to transform and harness knowledge facilitates innovation capabilities and the performance of organizations (Subramaniam and Youndt, 2005; Santos-Rodrigues et al., 2010; Caseiro and Coelho, 2019). It follows from there that fostering innovation agility has a positive effect on organizational innovativeness.

However, in this paper we argue that intellectual agility is more than simply the creation of an environment conducive with innovation. While managers are in charge of creating an organizational climate in which innovation can occur, the knowledge and skills of employees often assist in the success of innovation. For example, Steve Jobs may have had a vision, but it was the minds of Apple's designers, engineers, and marketing experts that transformed this vision into unique products, ultimately forming one of most prosperous companies in the world. With this in mind, we argue that intellectual agility primarily refers to the ability of employees to shift their modes of thinking, search for new information, and come up with novel solutions for present and prospective problems. Intellectual agility therefore pertains to individuals' learning about the challenges faced by organizations and subsequently putting this learned knowledge into practice within an organization, refining the company's stock of knowledge and skills in line with the requirements of its changing environment.

This tells us that intellectual agility is dual in nature. On the one hand, it is about the flexibility and speed with which organizational human capital (employees) develop the ability to solve challenges that arise. On the other hand, it is about the ability of management to create an environment that can enhance the intellectual agility of human capital. Existing literature has focused on the latter form of intellectual agility, assuming somewhat simplistically that this should lead to the application of relevant knowledge by human capital. However, we argue that the core of intellectual agility lies in the behavior of employees, while the conventional, management-related notion of intellectual agility is a facilitating factor in this process, mediating the relationship between the intellectual agility of employees and the innovation performance of organization - an issue which we come back to later.

Whether the above logic applies to SMEs in the same way as it does with large organizations is an uninvestigated topic in academic literature. For several reasons, SMEs may be constrained in their efforts to develop their own agility. Chan et al. (2018) note that SMEs -

due to their limited size - use highly idiosyncratic resources, capabilities, and business processes. They often lack extra resources and capabilities for the development of agile routines and processes. However, the same study argues that lower costs of changes in existing structure and less formalized routines and processes place SMEs in a more favourable position when it comes to the building of agility. This leads us to the first hypothesis of our research:

***H 1:** Intellectual agility of employees affects micro and small businesses' innovativeness.*

### ***Entrepreneurial leadership***

As argued in the previous section, the innovation success of an organization depends on two distinctive types of intellectual agility: the intellectual agility of employees and the intellectual agility of management when it comes to creating an environment to stimulate an organization's innovation success. The latter form of agility closely resembles another common concept in academic literature – that of EL.

The survival of SMEs in an unpredictable environment depends on the entrepreneurship and leadership competences of their owners/managers, combined with their talent, energy, and skills (Huang et al., 2014; Paudel, 2019; Demartini and Beretta, 2020). Over the years, scholarly literature on EL has investigated the traits and skills of entrepreneurial leaders (Rotefoss and Kolvereid, 2005; Kuratko, 2007; Harrison, Burnard, and Paul, 2018) such as psychological, sociological, demographic (Rotefoss and Kolvereid, 2005), or professional (Unger, Rauch, Frese, and Rosenbusch, 2011) characteristics. This literature argues that entrepreneurial leaders need to possess relevant experience and skills (Chen, 2007), especially interpersonal skills (Watson et al., 1995), creativity (Amabile, 1997), and opportunity orientation (Ardichvili, Cardozo, and Ray, 2003), which may help them to formulate the desired image in the future, inspiring other employees to follow their vision.

Broadly speaking, two main characteristics - future orientation and building community - distinguish EL from other styles of leadership. The former refers to the ability of entrepreneurial leaders to formulate their vision and lead their team in an uncertain environment, while the latter refers to the efforts of entrepreneurial leaders to encourage a supporting cast of followers in the creation of strategic value (Gupta et al., 2004; Ireland et al., 2009). Hayton (2005) notes that entrepreneurial orientation depends on the acquisition, integration, and exploitation of knowledge. An organization requires its members to be ‘quick on their intellectual feet’ (Bontis et al., 1999) and, as such, intellectual agility is closely correlated with personal traits and skills recognized as relevant in EL literature, such as creativity, flexibility, and adaptability. For this reason, it is considered a reliable indicator of leadership potential (Tovstiga and Tulugurova, 2007).

According to Wanasika (2009), future orientation enables strategic decision-making, based on realistic predictions regarding the future. Entrepreneurial leaders influence innovation and opportunity recognition in SMEs (Renko et al., 2015; Bagheri, 2017) by formulating a vision, expecting a certain amount of uncertainty (Cogliser and Brigham, 2004), and anticipating, envisioning (Hitt and Ireland, 2005), and maintaining flexibility (Rowe, 2001). A future orientation is also essential in anticipating and proactively predicting future competitive conditions and challenges (Gupta et al., 2004; Hitt and Ireland, 2005). As an innovative firm is able to ‘implement an innovation during certain period’ (Santos-Rodrigues et al., 2010), it is crucial to forge an imagined vision of the future and anticipate possible future events (Gupta et al., 2004) in order to succeed. To this end, we hypothesize:

***H2a: Future orientation positively affects micro and small businesses’ innovativeness.***

The introduction of new products/services, processes, and technological solutions is often the result of team effort (Chen, 2007; Huovinen and Pasanen, 2010). This requires the building of a stable relationship between leaders and followers (Xing et al., 2020). By

respecting the needs of followers and building trust among team members, entrepreneurial leaders enable the promotion of entrepreneurial self-efficacy and team spirit (Breugst, Domurath, Patzelt, and Klaukien, 2012). Moreover, through permanent contact with the internal and external environment, entrepreneurial leaders can anticipate potential resistance, gather support from key stakeholders, provide critical resources and information, or eliminate barriers when it comes to achieving desired goals. Additionally, communication and collaboration with other employees and stakeholders may contribute to superior performance through the exploration of entrepreneurial opportunities (Ireland, Covin, and Kuratko, 2009), promoting the creativity of followers and enhancing innovative capacity (Chen, 2007). By creating strong positive emotions for work (Gupta et al., 2004) and building trust within the team, entrepreneurial leaders can enable employees to better commit to their tasks. Thus, we hypothesize that:

***H2b: Building community positively affects micro and small businesses' innovativeness.***

Through formulating a desired image of the future, leaders can process uncertainty (Cogliser and Brigham, 2004). Future orientation and creating a desirable image of the future is vital in uniting all employees and facilitating their joint efforts when achieving the desired goals. Building confidence among employees enables entrepreneurial leaders to build team spirit (Breugst et al., 2012) and encourage group members to work together (Gupta et al., 2004; Huang, Ding, and Chen, 2014). Thus, a shared vision should be considered an instrument with which to strengthen the connections between employees, leading to our next hypothesis:

***H3: Future orientation positively affects the building of community in micro and small businesses.***

***The mediating relationships***

Several previous studies have analyzed the entrepreneurial and leadership capabilities and competencies that can lead to superior performance (Ireland et al., 2003; Cogliser and Brighamb, 2004; Gupta, MacMillan, and Surie, 2004; Bamiatzi et al., 2015; Koryak et al., 2015; Fontana and Musa, 2017). Based on their findings, personal competencies of entrepreneurial leaders determine the anticipation of future events and assist when it comes to exploring of new opportunities. On the other hand, the functional competencies of entrepreneurial leaders empower them to influence and inspire their followers to act in accordance with the defined vision (Bagheri, 2017). Therefore, we assume that future orientation can facilitate the building of a sense of community among followers, leading to better intellectual agility in entrepreneurial leaders.

The mediating effect demonstrates the portion of effect transferred from the independent variable of interest through the mediating variable and onto the dependent variable. For this reason, it is sometimes referred to as indirect effect. This indirect effect consists of two links: one from the independent variable of interest to the mediating variable, and another from the mediating variable to the dependent variable. In the presence of a mediating relationship, it is expected that both links are statistically significant. Taking this into account, we have developed our fourth hypothesis:

***H4:** Future orientation mediates the relationship between intellectual agility and the building of a sense of community.*

The success of the innovation process depends on team effort but also on the activities and characteristics of entrepreneurs (Renko et al., 2015). Chen (2007) notes that entrepreneurial leaders empower team members in problem solving by envisaging challenges and pointing towards the path for value creation. Their activities facilitate networking and communication within teams, encouraging team members' creativity and framing uncertainty, thus contributing to the development of entrepreneurial culture within an organization. These activities facilitate

the creation of a climate that maximizes outputs of intellectual agility and thus, as argued by Wu et al. (2008) mediates the relationship between human capital (including intellectual agility) and innovation.

The above suggests that there are two principal channels through which EL facilitates the intellectual agility of employees in the innovation process. On the one hand, it provides a stable foundation for the evolution of organization in a changing environment. By identifying a future direction for development, EL reduces uncertainty and acts as an anchor around which the cohesion of the organization strengthens. On the other hand, by creating an organizational culture that provides space for and favors speed and flexibility, EL facilitates the development of the DCs of employees within the organization. Therefore, we expect EL to mediate the relationship between intellectual agility and innovativeness. We postulate the following hypothesis for the mediating effect of future orientation on the relationship between intellectual agility and innovativeness:

***H5:** Future orientation mediates the relationship between intellectual agility and micro and small businesses' innovativeness.*

We also put forward the following hypothesis with regards to the mediating effect of building community on the relationship between intellectual agility and innovativeness:

***H6:** Building community mediates the relationship between the intellectual agility and micro and small businesses' innovativeness.*

In order to implement an innovation (e.g. product, process, marketing, or organizational innovation) during certain period (Santos-Rodrigues et al., 2010), it is crucial to be ready to anticipate possible future events. These need to be represented through a formulated vision. Employees should be the ones to assure the implementation of creative vision. Therefore, entrepreneurial leaders need to motivate employees to continuously recognize and act on

opportunities, be creative, and be agile in adapting to change (Fontana and Musa, 2017). Through building trust and commitment, (Huang, Ding, and Chen, 2014) leaders have to inspire followers to act in accordance with a shared vision, which leads to the enhancement of innovative capacity and the generation of innovative ideas to solve problems (Bagheri, 2017). Therefore, we hypothesize that:

*H7: Building community mediates the relationship between future orientation and micro and small businesses' innovativeness.*

Figure 1 presents our theoretical model in a graphical manner. As it can be seen from there we expect that intrinsic motivation of employees makes them agile which in turn creates direct positive effects on the innovativeness of micro and small businesses. However, we also hypothesize that two key dimensions of entrepreneurial leadership, future orientation and community building mediate this relationship by creating environment conducive to innovation agility of employees. Finally, it is expected that future orientation influences the way of community building.

**Insert Figure 1 about here**

## **Method**

### ***Instrument***

Our analysis is based on a survey encompassing intellectual agility, EL, and the innovativeness of micro and small businesses. The survey consists of four parts. The first part gathers information about human capital, with intellectual agility as its component (Chen et al., 2004; Engstrom et al., 2003). The second part assesses the dimensions of EL (Renko et al., 2015). The third part measures micro and small businesses' innovativeness (Gumusluoglu and Ilsev, 2009), and the fourth part includes demographic data pertaining to respondents and their organizations, typically used in business studies (Huang et al., 2014; Tang et al., 2017).

The target population was micro and small businesses in Serbia operating in all industries. This group represents 99.2% of all enterprises in Serbia (EC, 2017). We focused on micro and small businesses as agility and innovativeness represent key building blocks when it comes to the success of these enterprises and their eventual future growth. Among them, there are 288,843 micro enterprises employing up to 9 employees, and 9,543 small enterprises employing up to 49 employees (EC, 2017). To identify micro and small businesses for the survey, we used the Business Registry Agencies database<sup>1</sup>, which lists Serbian organizations and follows the European Commission definition<sup>2</sup>, wherein micro enterprises employ up to 9 employees, and small enterprises employ up to 49 employees. Using random sampling, we extracted 500 firms that were micro and small businesses.

Serbia is non-EU efficiency-driven economy located in South Eastern Europe. According to European Innovation Scoreboard (2020) data, it is a modest innovator. This is a term used to describe countries whose innovation performance falls between 50% and 95% of the EU average. Compared to other European economies, Serbia can be considered among the least innovative, with only 7 out of 37 economies encompassed within the European Innovation Scoreboard being ranked worse. Its economy is characterized by efficiency-driven activities and limited innovation potential. However, its SME innovativeness - particularly in-house SME innovativeness - is ranked as above the EU average. It can therefore serve as a role model when it comes to understanding the innovation behavior of firms in similar environments.

### ***3.2 Sample and data collection***

The survey was conducted in 2018. Following prior studies (see, for instance, Olawale and Smit, 2010; Kamukama et al., 2010; Khalique et al, 2015) data was collected using key informants in micro and small businesses. In our study, the informants were the CEO, the

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<sup>1</sup> Republika Srbija, Agencija za privredne registre. (2018). Pretraga privrednih društava. <https://www.apr.gov.rs/>

<sup>2</sup> <https://ec.europa.eu/growth/tools-databases/kets-tools/glossary/sme>

Managing Director, the General Managers, the Owner, Managers, the Assistant Manager, Technicians, and Senior Staff, because they were appropriate when representing data from each micro and small businesses. One invitation to each micro and small businesses in the sample was sent. According to the procedure implemented by Dabić et al. (2019), invitations were sent to potential participants via email with a link to the web-based survey questionnaire, and two follow-up reminder emails were sent. Participants were provided assurances of the confidentiality of their survey responses and the anonymity in the reporting of study results. 131 responses were returned (26.2% micro and small businesses responses). The characteristics of the respondents are presented in Table 1 below.

**Insert Table 1 about here**

### ***Measures***

*Independent variable.* Intellectual agility of employees was constructed through exploratory factor analysis ( $KMO = .858$ , Bartlett's test of sphericity = 425.580;  $df = 55$ ;  $p < 0.001$ ) on the basis of four constructs taken from the survey questionnaire. Specifically, measures were adopted from previous literature (Engstrom et al., 2003; Chen et al., 2004) and assessed using a scale ranging from 1 (little extent) to 5 (great extent). The four constructs referred to above are the answers of employees with regards to their own level of skills when it comes to doing business, the frequency with which they upgrade their own knowledge and skills, their perception of work tasks as a challenge or an opportunity to prove their skills, and their willingness to apply alternative solutions when solving problems. These four constructs present the core of the definition of the intellectual agility of employees, as used in previous sections.

*Dependent variable.* Micro and small businesses' innovativeness was measured using 3 items, as proposed by Gumusluoglu and Ilsev (2009). These refer to the introduction of new

products/services, keeping track of technological advances and market trends. The responders indicate the extent to which their micro and small businesses' innovativeness, ranging from 1 (little extent) to 5 (great extent). A variable of micro and small businesses innovativeness was formulated through a confirmatory factor analysis ( $KMO = .726$ , Bartlett's test of sphericity = 135.579;  $df = 3$ ;  $p < 0.001$ ).

*Mediating variables.* The two key components of EL were adopted from Renko et al.'s (2015) ENTRELEAD-scale and were measured with a five-point scale ranging from 1 (little extent) to 5 (great extent). Future orientation was assessed through responses concerning expectations regarding the future development of the enterprise, prediction skills, and inspiring employees into accepting organizational values. The building community variable was created on the basis of responses about the speed of making and implementing decisions, attitudes regarding future firm performance, and ability to encourage other employees to think logically. Both variables were constructed through the exploratory factorial analysis ( $KMO = .894$ , Bartlett's test of sphericity = 1382.413;  $df = 253$ ;  $p < 0.001$ ),

High KMO scores indicate that sampling is adequate and significant. Bartlett's tests of sphericity ( $p < .001$ ) justify the utilization of factor analysis (Hair et al., 1998). Details for all latent variables in the survey are outlined in Table 2.

All measures of the internal consistency (Cronbach's  $\alpha$ ) of the formed variables lie well above the cut-off point of 0.7 (Nunnally, 1978), ranging between .727 and .845. Factor loadings range between .518 and .864, which is way above conventional cut-off values (Henson and Roberts, 2006; Vlajčić et al., 2019). In terms of the convergent validity of measures, the composite reliability (CR) of all four measures is well above the suggested threshold of .600 (Fornell and Larcker, 1981). The average variance extracted (AVE) is slightly below the suggested level of .500 (Fornell and Larcker, 1981). According to Fornell and Larcker (1981, p. 46) AVE is a more conservative measure of estimating validity of measures and the

researcher can conclude, on the basis of CR alone, that the convergent validity of the variable is adequate. For instance, Lam (2012) reports an acceptable CR of between .71 and .74 and an AVE above .31. Putting these pieces together, we can conclude that our measures are reliable.

**Insert Table 2 about here**

*Control variables.* Existing literature suggests that some individual and organizational characteristics may affect the relationship between independent and dependent variables and thus need to be controlled to achieve an adulteration free relationship between observed variables (Delery and Doty, 1996; Liu and Almor, 2016). We controlled for several personal demographic characteristics, namely gender (male, female), age (below 30, between 31 and 50, above 50), level of education (secondary school, high school, university, masters/Ph.D.), and years of experience (up to 2 years, from 2 to 5 years, over 5 years), as well as some organizational characteristics, namely organizational size (2 to 9 employees, 10 to 50 employees, above 50 employees) and micro and small businesses industry (manufacturing, wholesale and retail, service). We dummy coded industry, by converting it into a set of two dummy variables for wholesale and retail and service sectors, taking manufacturing as a reference category.

#### ***Common method variance measures***

As the source of both the independent and dependent variables existed in one instrument, the possibility of bias could not be excluded (Podsakoff et al., 2012). We first estimated the common method variance utilizing exploratory factor analysis in SPSS, where all 13 items comprising our four latent variables, were loaded onto a single factor and constrained so that there was no rotation (Podsakoff et al., 2012). The newly introduced common latent factor

explains 40.79% of the variance, indicating that the possible presence of common method bias is below the threshold value of 50% (Podsakoff et al., 2012). Next, we used the method of marker variables, which is theoretically unrelated to the principal constructs in the research (Lindell and Whitney, 2001). We used education as the marker variable, seeing as studies examining organization agility (Cegarra-Navarro and Martelo-Landroguez, 2020), intellectual capital and innovation speed (Wang et al., 2018), or SMEs' sustainable growth (Diabate et al., 2019) did not include education in the examination, implying that education was not significant for the measures used in our study. Low correlations between education and the four principal constructs in our study (where the highest was  $r = -.130$ ), showed no evidence of common method bias (Lindell and Whitney, 2001). Finally, the correlations between the variables of interest in this study (Table 3) are all well below extremely high correlations ( $>.90$ ), indicating the possibility of common method bias (Bagozzi et al., 1991). We can thus deduce that the possibility of common method bias in this study is low.

### ***Research approach***

Our research was comprised of the following steps. Firstly, we outlined elements of descriptive statistics and zero-ordered correlations among variables of interest using SPSS 23. Next, we used structural equation modeling (SEM) to test the proposed theoretical model using AMOS software. We followed the procedure established in prior studies examining direct and indirect effect (i.e. mediated effect) using SEM (Cegarra-Navarro and Martelo-Landroguez, 2020; Wang et al., 2018). We first investigated the direct effect of intellectual agility of employees on micro and small businesses' innovativeness and then examined the mediation effect of EL, comprising all four latent measures in our study. Bootstrapping was used to determine the significance of the indirect associations in the model. Goodness of fit statistics were first calculated for direct effects, including two variables, and for four factor measurement models, including mediator variables (see Table 3).

**Insert Table 3 about here**

The results indicated a good fit between the hypothesized model and the data (Hu and Bentler, 1999; Byrne, 2010). According to the significant correlations between four principal variables in our model (Table 4), conditions for the existence of a mediation effect (Baron and Kenny, 1986) are fulfilled.

## **4 Results**

### ***Descriptive statistics and correlation analysis***

The means, standard deviations, and correlations between the study variables are presented in Table 4.

**Insert Table 4 about here**

Several associations between the study variables are noteworthy. First, intellectual agility of employees is significantly and positively associated with future orientation, building community, and micro and small businesses' innovativeness. Second, EL dimensions of future orientation and building community are both significantly and positively associated with micro and small businesses' innovativeness. Third, among the controls, working experiences are significantly and negatively associated with intellectual agility of employees, future orientation, and micro and small businesses' innovativeness. Fourth, significant correlations are found between four principal variables in this study, implying the need to test the mediation effect. We examine the significance of these associations in next sections.

***Direct effect of intellectual agility of employees on micro and small businesses' innovativeness***

We began by examining the direct effect of intellectual agility of employees on micro and small businesses' innovativeness through a two factor structural model (Figure 2). Standardized path coefficients reveal that intellectual agility of employees has a significant and positive impact on micro and small businesses' innovativeness ( $b = .468, p < .001$ ). This supports Hypothesis 1.

**Insert Figure 2 about here**

***Mediation analysis***

For the next step, the mediation effect of EL, considered as future orientation and building community, was examined for links with intellectual agility of employees and micro and small businesses' innovativeness. Figure 3 presents the standardized path coefficients of the full model, including direct and indirect (mediation) effects, according to the specified research model.

**Insert Figure 3 about here**

Table 5 presents the direct effects in a mediation model, where EL dimensions are included as mediators. Future orientation was significantly and positively related to micro and small businesses' innovativeness. This supports Hypothesis 2a. Building community was positively, but non-significantly related to micro and small businesses' innovativeness. This suggest rejection of Hypothesis 2b. H 3 was supported, given that future orientation is significantly and positively related to building community.

**Insert Table 5 about here**

Table 6 outlines the indirect effects in a mediation structural model. Results from the entire structural model reveal the mediation effect of entrepreneurial dimensions of future

orientation and building community on the relationship between intellectual agility of employees and micro and small businesses' innovativeness. The direct effect of intellectual agility of employees on micro and small businesses' innovativeness loses its significance. However, we observed statistically significant and positive indirect effects going through both future orientation and building community dimensions of EL. This supports H5 and H6.

#### **Insert Table 6 about here**

Seeing as we have multiple mediators in our model - future orientation and building community - we also evaluated the strength of each mediator on the effect of intellectual agility of employees on micro and small businesses' innovativeness. Following the procedure proposed by Cegarra-Navarro and Martelo-Landrogue (2020), we evaluated the difference between (Intellectual agility of employees → Future orientation X Future orientation → Micro and small businesses' innovativeness) and (Intellectual agility of employees → Building community X Building community → Micro and small businesses' innovativeness). As the differential effect is .473, we state that future orientation is a stronger mediator than building community. Finally, H7 was not supported as building community did not mediate the relationship between future orientation and micro and small businesses' innovativeness. Future orientation fully mediated the relationship between intellectual agility of employees and building community, supporting H4.

## **5. Discussion**

This paper proposed and tested a conceptual model of the impact of intellectual agility of employees on micro and small businesses' innovativeness, mediated by EL dimensions of future orientation and building community.

The positive impact of intellectual agility of employees on micro and small businesses' innovativeness corresponds with previous studies which show that human capital impacts

innovativeness (Santos-Rodrigues et al., 2010). It is clear that the EL mediates the effect of intellectual agility of employees on micro and small businesses' innovativeness to the extent that the effect of intellectual agility of employees on micro and small businesses' innovativeness becomes insignificant and even negative. In a way, our results correlate closely with those reporting that entrepreneurial orientation mediates the relationship between human capital and innovation (Wu et al., 2008). Thus, we may argue that the EL has a significant role in using intellectual agility of employees for micro and small businesses' innovativeness.

Findings in this research highlight future orientation and building community as dimensions that determine EL behaviour in the context of micro and small businesses. Our results are in line with the finding that EL affects SMEs' performance (Sawaeen and Ali, 2020; Miao et al., 2019; Yang et al., 2019; Hayat et al., 2019; Ximenes et al., 2019) and innovativeness (Paudel, 2019). We found that future orientation is a central determinant of micro and small businesses' innovativeness in our proposed model, as it significantly contributes to micro and small businesses' innovativeness and building community, while it is significantly affected by intellectual agility of employees. The central role of future orientation in building micro and small businesses' innovativeness can be attributed to the following: i) The need to constantly strive to innovate in micro and small businesses in order to survive and succeed; ii) The role of building community, wherein innovativeness is fostered by encouraging other employees in micro and small businesses; iii) The role of intellectual agility of employees for future orientation may stem from the fact that micro and small businesses are often established by those "who dare" and "who are willing to accept risk" as well as those who often have well-developed business skills.

Innovativeness is not a top priority among the micro and small businesses respondents in our survey, although the firms' survival depends on innovative capabilities (Subramaniam and Youndt, 2005). Prior findings emphasize that the innovativeness of SMEs is a key

characteristic and one of the most relevant building blocks for their success (Abor and Quartey, 2010), as SMEs are faced with many barriers inhibiting their growth (Bartlett and Bukvič, 2001; Ruziev and Webber, 2020). SMEs in a situation of resource scarcity might look to increase the value of intangible assets (Rauch and Rijsdijk, 2013; Unger et al., 2011; Vuorio et al., 2020).

Among control variables, working experiences are significant, revealing that micro and small businesses respondents with fewer working experiences perceive intellectual agility of employees, future orientation, and especially micro and small businesses' innovativeness, significantly more favourably than respondents with more experience. This confirms the general assumption that younger employees are more creative and innovative than other older workers (Schubert and Andersson, 2015). In terms of small and micro business' industry, it is evident that survey participants working in micro and small business involved in wholesale and retail, perceive intellectual agility of employees, building community, future orientation, and especially micro and small businesses' innovativeness, significantly less favourably than respondents working in manufacturing. Inversely, survey participants working in micro and small business involved in service, perceive intellectual agility of employees, building community, future orientation, and especially micro and small businesses' innovativeness, significantly more favourably than respondents working in manufacturing.

A correlation table reveals that organizational size does seem to play a significant role for our four principal variables. As the organizational size plays significant role especially, when considering micro and small business, we additionally calculated whether there are statistically significant differences in the model between micro and small enterprises. To this end we followed procedure suggested by Cumming (2009), who claimed that significant differences exist between beta coefficients, when the corresponding 95 % confidence intervals overlap by not more than 50 %. Comparing the standardized beta coefficients for micro and small enterprises for associations studied in the model reveal no significant differences between

standardized beta coefficients for micro and small enterprise ( $p < .05$ ). This additionally, confirms non-significant effect of organizational size on principal variables in this study.

## **Conclusions**

### *Theoretical implications*

Our study complements prior research assessing the effect of human capital (Santos-Rodrigues et al., 2010, Subramaniam and Youndt, 2005) and EL on SMEs' performance (Sawaeen and Ali, 2020; Miao et al., 2019; Yang et al., 2019; Hayat et al., 2019; Ximenes et al., 2019) and innovativeness (Paudel, 2019). In extending the existing body of knowledge, it has several theoretical implications. Firstly, we have filled the gap in existing literature with respect to the definition of the intellectual agility of employees. Unlike existing studies that have approached this issue from leadership perspective, we have argued that sources of agility can be found both within employees and within their managers.

Our second contribution lies in highlighting the relationship between these two types of intellectual agility (both employee and leadership). The prevalent approach to intellectual agility, in fact, encompasses only the mediating factor that stimulates the intellectual agility of those at the frontier of the innovation process - company employees. As our study shows, the future orientation of EL plays a crucial role in realizing the potential of intellectual agility for micro and small businesses' innovativeness, as it fully mediates the impact of the intellectual agility of employees in this area. This suggests that, by offering a direction for future development and reducing uncertainty, EL provides stability and stimulates cohesion, reducing the search costs of employees and enabling them to develop their own dynamic capabilities in a proper way.

Thirdly, our findings are of importance in terms of understanding innovation behavior in efficiency-driven economies. Firms in such settings often lack innovation competencies and

capabilities, impeding their ability to develop novel products and services. In a European context, there has been a lot of research into the innovation behavior of the so-called advanced efficiency-driven economies of Central and Eastern Europe. What drives innovation in less advanced economies from South Eastern Europe remains largely unknown. Scholarly literature is yet to determine the relevance of individual external and internal factors. Our study is one of the first steps in this direction.

### *Practical implications*

This paper has several substantial practical implications. Firstly, intellectual agility of employees significantly impacts micro and small businesses' innovativeness, while future orientation is a key determinant of micro and small businesses' innovativeness. This implies that future orientation has a decisive role in realizing the potential of intellectual agility of employees for fostering micro and small businesses' innovativeness. Managers/owners must recognize the role of EL, especially in terms of future orientation, when trying to reap the benefits of intellectual agility of employees for micro and small businesses' innovativeness. In order to increase the impact of intellectual agility of employees on micro and small businesses' innovativeness via future orientation, micro and small businesses' managers must constantly improve their competences and knowledge to improve their business skills, as well as inspiring employees by building community. This will positively influence future orientation which, in turn, will directly boost micro and small businesses' innovativeness and help indirectly by building community. The negative effect of intellectual agility of employees on micro and small businesses' innovativeness, in the mediated model, exposes the need for the "active" role of micro and small businesses' managers in managing micro and small businesses' innovativeness in order to prevent the loss of the potential for intellectual agility of employees.

Secondly, micro and small businesses and their management teams must pay more attention to fostering innovation as it is a key building block when it comes to their survival

and success (Bartlett and Bukvič, 2001; Ruziev and Webber, 2020), as well as being intrinsic to their competitiveness. In a situation where managers need to foster micro and small businesses' innovativeness, relying on increasing the value of intangible assets is crucial (Rauch and Rijdsdijk, 2013; Unger et al., 2011; Vuorio et al., 2020). Thus, managers need to take advantage of the positive contribution of intellectual agility of employees on micro and small businesses' innovativeness and thus realize the internal micro and small businesses' potential" for boosting their innovativeness. Another set of key tasks for micro and small businesses' management is to establish an environment to support innovativeness in their firms and be open for a "trial-and-error" approach. In addition, reward systems must be re-thought in a way that will support the fostering of innovative activities for all of the micro and small businesses' members. Managers should act as role models for other micro and small businesses' members, while also using workshops to introduce and encourage creative thinking (DeBono, 1992) and in-service training to foster innovativeness. In terms of recruiting practices, micro and small businesses can increase innovativeness through their reliance upon younger employees.

Thirdly, it seems that building community offers little contribution to micro and small businesses' innovativeness. Developing this link can be fostered upon the strong positive effect of future orientation. Therefore, managers should actively work to inspire other employees in terms of innovation. It is possible to enhance building community by fostering team spirit. Additionally, business schools should strive to develop this link through the education of future employees by teaching future generations to make decisions quickly, improve their (ir)rational thinking, and place teamwork at the forefront.

### *Limitations*

This study is not without its limitations. Firstly, focusing on one component of human capital, namely intellectual agility of employees, calls for the inclusion of well-known key components of human capital, competences, and attitudes (Roos et al., 1997; Bontis et al., 1999)

to clarify the role of intellectual agility in broader context. Secondly, our sample contains answers from Serbian micro and small businesses, where innovation-driven entrepreneurship is in a phase of expansion. Due to these specific circumstances, our results may have limited implications for micro and small businesses operating in different circumstances. Additionally, the research was done within the cultural and economic environment of Serbia. This may have affected the results due to this specific historical position and the distinct transition towards a free-market economy, etc. Thirdly, a self-assessment approach was used to assess the items comprising principal variables in our study. Managers may have more favourable views on this than other employees in micro and small businesses, or vice versa. Despite this, self-assessment is common in management research and we followed previous studies when assessing the possibility of common method bias (Podsakoff et al., 2012; Cegarra-Navarro and Martelo-Landroque, 2020).

#### *Future research directions*

Possible future research directions to enhance our results include the following: firstly, to verify whether or not the pattern results are valid in different contexts, for example, in different development levels of entrepreneurship in other countries, or different societal and cultural contexts; secondly, to include a broader aspect of human capital dimensions in order to obtain a more comprehensive picture of the role of intellectual agility in a given context; thirdly, in order to avoid socially desirable answers from key informants of micro and small businesses, a future study should also incorporate the views of non-managerial members to improve the accuracy of assessing principal variables in our model.

Another avenue worth pursuing is assessment of collaboration in the context of our investigation. A long time ago, academics came to the understanding that collaboration with agents from innovation systems enables firms to supplement indigenous innovation resources and facilitate the success of the innovation process. This may be even more relevant for firms

in efficiency-driven economies, such as the one in our study, wherein the innovation potential of firms is low and firms are often forced to search for missing resources in their external environment. Future research should explore whether or not collaboration facilitates the intellectual agility of organizations. One issue particularly worth pursuing is the role of spatial and non-spatial proximities between partners, as these have often been found to act as barriers to collaboration.

This study emphasized the importance of intellectual agility of employees to micro and small businesses' innovativeness and outlined future orientation of EL as key determinant. We developed a conceptual model depicting the mediating role of EL between intellectual agility of employees and micro and small businesses' innovativeness and tested our hypotheses by analyzing data collected from Serbian micro and small businesses. This study makes several contributions to scholarly literature in the respective fields of intellectual agility, EL, micro and small businesses' innovativeness, and the relationships between them. Our results are useful for micro and small businesses' owners and managers in shaping their future work, encouraging them to improve their innovativeness.

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