

# Role of managerial innovativeness for small Finnish firms' product and market performance

Managerial  
innovativeness  
in small firms

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## Abstract

**Purpose** – Successful firms are important sources of productivity, employment and economic stability in societies. As the micro-level origins of firm innovations are increasingly attracting attention amongst innovation scholars, the purpose of this study is to investigate the role of managerial innovativeness, i.e. small firm managers' innovative behaviour for firm performance. Specifically, the present study investigates managerial innovativeness as a predictor of small firms' product innovativeness and market performance.

**Design/methodology/approach** – This research model suggests that managerial innovativeness is positively linked to firms' market performance and that product innovativeness partially mediates the relationship between managerial innovativeness and market performance. The model was tested using partial least squares structural equation modelling (PLS-SEM) with a dataset ( $N = 93$ ) collected from small logistics firms in South-Eastern Finland.

**Findings** – The findings support the authors' hypotheses and show that managerial innovativeness had a direct effect on firms' product innovativeness and market performance. The authors also found that firms' product innovativeness mediated the relationship between managerial innovativeness and firms' market performance.

**Originality/value** – This is one of the few studies that shed light on and show that managerial innovativeness is significantly and positively related with small firms' product innovativeness and market performance, whereas earlier research tended to focus on managers' personalities, traits, characteristics or managerial actions, leaving managerial innovativeness unexplored.

**Keywords** Managerial innovativeness, Small business, Firms, Product innovativeness, Market performance, Logistics

**Paper type** Research paper

## 1. Introduction

Successful small firms are important sources of regional productivity, employment and economic stability (Kuratko and Hodgetts, 2001; Fischer and Nijkamp, 1988; Sternberg, 2012;

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Huang, 2020; Bosma *et al.*, 2011). Small firms and entrepreneurs are increasingly attracting attention among innovation scholars (Fernandez-Serrano *et al.*, 2019). Moreover, the micro-level origins of innovation systems (Kaufmann and Tödting, 2001) and firm innovation highlight the role of individual entrepreneurs and their personal characteristics in innovation management (Marvel and Lumpkin, 2007; Fernandez-Serrano *et al.*, 2019).

In small firms, the managerial factors central to firm performance revolve around one or rather few people who bear the main responsibility for decision making (Andersson and Florén, 2008; Miller *et al.*, 1982) and play a central role in fostering firms' innovation (Marcati *et al.*, 2008; Lefebvre and Lefebvre, 1992; Palumbo and Rosalba, 2018), internationalisation (Andersson and Florén, 2011), adoption of e-business (Ghobakhloo *et al.*, 2011) and, ultimately, the firms' performance (Miller and Toulouse, 1985). Likewise, scholars investigating the micro-level origins of firm performance have focussed on the managerial factors that explain small firms' performance (Wiklund and Shepherd, 2003; Marcati *et al.*, 2008; Wallace *et al.*, 2010; Stenholm, 2011).

A prominent stream of small business research has studied managers' personal characteristics in relation to firm performance. Whilst Lefebvre and Lefebvre (1992) associated CEOs' characteristics with firms' innovativeness, Westerberg *et al.* (1997) found that CEOs' personal attributes had a significant impact on the performance and orientation of small firms in a turbulent environment. Also, entrepreneurship research associate entrepreneurs' individual aspects, such as intrinsic motivation, with firm innovation (Martínez-Roman and Romero, 2017), their personalities with small firms' innovative product-marketing strategies (Miller and Toulouse, 1986) and their competences with firm performance (Iskamto *et al.*, 2020). Although the impact of managerial factors – managers' characteristics, personalities and traits – on firms' performance is widely acknowledged, the personality-trait perspective offers only a partial explanation of small firms' performance (Keats and Bracker, 1988; Wallace *et al.*, 2010).

The research stream on managerial behaviour in small firms has focussed on managers' actions (Andersson and Florén, 2008, 2011) and how managers behave whilst managing their companies (Sadler-Smith *et al.*, 2003). Scholars in this research area have asserted that management in small firms is multifaceted, involving innovation, competition (Covin and Slevin, 1988; Sadler-Smith *et al.*, 2003), growth (Georgelli *et al.*, 2000) and administration. Given the central role of managerial behaviour in small firms, this study focusses on little-studied managerial innovativeness, which in line with Wong and Boh (2014, p. 1181), is understood as “the extent to which managers are successful at generating and implementing new ideas” for firm performance. As managers, and individuals in general, can be differentiated in terms of their personal innovativeness and the extent to which they employ this in managing their firms (Mom *et al.*, 2009), managerial innovativeness can offer an explanation as to why some firms are more innovative than others. Of note is that much of the research has focussed on employee innovativeness in small and medium-sized enterprises (SMEs) (e.g. Nguyen and McGuirk, 2022; Anser *et al.*, 2022), leaving managerial innovativeness unexplored.

Given the above, this study aims to shed light on the role of managerial innovativeness, i.e. the innovativeness of the actor holding the leading position in a company (the chief executive officer (CEO), owner, entrepreneur or other responsible manager) for the small firm's product innovativeness and market performance. Managerial innovativeness concerns the manager's behaviours to generate novel ideas, identify opportunities and promote the implementation of novelty in practice (Wong and Boh, 2014; Schott and Bruce, 1994). The authors suggest that managerial innovativeness is likely to foster firms' product innovativeness, i.e. firms' capacity to develop and launch novel products and services on the market (Wang and Ahmed, 2004; Weerawardena, 2003) and firms' market performance, referring to firms' capacity to outperform competitors in market share (Delaney and Huselid, 1996; Harel and Tzafrir, 1999). Hence, the

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research question of this study asks: *What is the impact of managerial innovativeness on the product innovativeness and market performance of small firms?*

Building on the literature on managerial behaviour (Andersson and Florén, 2008, 2011; Sadler-Smith *et al.*, 2003; Kraiczy *et al.*, 2015) and individual innovative behaviour (Scott and Bruce, 1994; Wong and Boh, 2014), the authors proposed a research model to examine the impact of managerial innovativeness on small firms' product innovativeness and market performance and the mediation of small firms' product innovativeness between managerial innovativeness and market performance. The hypotheses are tested with a dataset collected from managers (N = 93) of small logistics firms operating in South-Eastern Finland.

This study contributes to research on managerial innovativeness by providing a novel understanding of the role of the micro-level origins of small firm performance. The findings show that managerial innovativeness is positively linked with small firms' product innovativeness and market performance and that product innovativeness mediates between managerial innovativeness and market performance. Further, by focussing on managerial innovativeness, this study contributes to prior research which focussed on the personal attributes of managers (Lefebvre and Lefebvre, 1992; Westerberg *et al.*, 1997; Martínéz-Roman and Romero, 2017; Miller and Toulouse, 1986). On a practical level, this study highlights the importance of managerial innovativeness for small firms' performance and suggests that the greater the manager's innovativeness, the greater the firm's performance. In a broader sense, this study provides valuable contributions to the research on regional development and economy, specifically for those aiming to provide support for small firms (Galbraith *et al.*, 2017) and building regional innovation clusters and networks.

The paper begins with an introduction to the theoretical framework of the research. It continues with a description of the research design and methodological choices and the subsequent analyses. This is followed by a presentation of the results and related discussion, including theoretical and managerial implications. The paper ends by discussing the study's limitations and future research directions and conclusions.

## 2. Understanding managerial innovativeness in small firms

### 2.1 Small firms as managerial environments

Managerial behaviours in small firms with fewer than 50 employees (OECD, 2019) are less specialised than in large firms because being an entrepreneur and managing a small firm involves constant movement between a variety of activities and fields of management (Florén and Tell, 2004; Andersson and Florén, 2008; Sadler-Smith *et al.*, 2003). Moreover, the small firm's function and performance depend on the manager's creative and innovative actions, which are fundamental for all incremental innovations (De Jong and Den Hartog, 2010), entrepreneurial processes (Chen and Yang, 2009) and business growth and survival (Jabani Mambula and Sawyer, 2004). Even though innovativeness is essential in becoming and being an entrepreneur (Carland *et al.*, 2007; Sadler-Smith *et al.*, 2003; Chen and Yang, 2009), innovativeness as a managerial behaviour is rather little studied, particularly in small firms.

The conceptualisation of managerial innovativeness, i.e. the innovative behaviour of managers in small firms, was drawn from the extant research which shows that managerial characteristics and behaviour affect a company's overall performance (Minichilli *et al.*, 2010; Lumpkin and Dess, 1996) and innovation performance (Hambrick and Mason, 1984; Mohan *et al.*, 2017). This view was supported by the theory on small firm performance (Keats and Bracker, 1988), which suggests that owners' psychological and behavioural characteristics (entrepreneurial intensity, motivation and self-efficacy) have a dominant impact on small

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firms' performance. Likewise, scholars who have studied small businesses (Wallace *et al.*, 2010; Hambrick and Finkelstein, 1987) based on upper echelon theory (UET) (Hambrick and Mason, 1984) have suggested that firms' functioning and performance depend on the top managers' behaviours (Wallace *et al.*, 2010).

### *2.2 Managerial innovativeness*

Prior research has considered innovativeness as an individual's propensity to adopt innovation earlier than others in the same industry (Hirschman, 1980; Kirton, 1976), as a characteristic of the human personality (Kirton, 2003; Leavitt and Walton, 1975) or as an individual's ability to make original decisions independently of others' opinions (Hurt *et al.*, 1977).

This study understands managerial innovativeness through the concept of individual innovative behaviour (Scott and Bruce, 1994), which comprises behaviours that are focussed on generating novel ideas (creativity), seeking out novel opportunities and fostering the development and actualisation of ideas in practice (De Jong and Den Hartog, 2010). Innovativeness is managerial when it is associated with the behaviour of actors in leading positions (e.g. Wong and Boh, 2014).

Whilst investigating managers' innovativeness, Kraiczy *et al.* (2015) found that CEOs' innovative behaviour positively influenced research and development (R&D) performance in SMEs. De Visser and Faems (2015) found a positive and strong effect of managers' innovation behaviour on SMEs' R&D resource allocation. Specifically, CEOs' innovative behaviour mediated between their cognitive styles and SMEs' innovation performance (De Visser and Faems, 2015). The authors also found that CEOs can be differentiated by their tendency to orientate towards exploration or exploitation, which is likely to have an influence on firm-level resource allocation and innovation. Furthermore, Ghobakhloo *et al.* (2011) found that CEOs' innovativeness affected SMEs' adoption of e-commerce applications, linking managerial innovativeness with firm-level innovativeness. It follows that managers differ in the state of novelty they introduce in their firms and that highly innovative managers are likely to demonstrate behaviours that foster firm-level innovativeness and performance, leading to higher firm performance. A study by Sadler-Smith *et al.* (2003) supported this assumption with the finding that in high-growth firms, the managerial behaviour is entrepreneurial and focussed on the firms' innovation, competition and growth. Likewise, Covin and Slevin (1988) found that entrepreneurially oriented managers are willing to take business-related risks, favour change and innovation and compete with other firms. Specifically, managerial innovativeness reflects entrepreneurial behaviour in the sense that innovative managers are likely to create an innovative spirit, which enables firms to capture novel opportunities, produce innovations and be competitive (Sadler-Smith *et al.*, 2003; Covin and Slevin, 1988; Slevin and Covin, 1990).

### *2.3 Small firms' performance: product innovativeness and market performance*

Innovation is one of the central characteristics of successful firms. Firms aiming to be competitive in their markets need to perform well by putting effort into their innovativeness, risk taking and proactiveness (Miller, 1983). Wang and Ahmed (2004) identified five distinct types of innovativeness: behavioural innovativeness, product innovativeness, process innovativeness, market innovativeness and strategic innovativeness. In the present study, the focus is on small firms' product innovativeness and market performance.

Product innovativeness, defined as firms' relative competitiveness in producing innovations – novel products, services and processes – for markets (Wang and Ahmed, 2004; Weerawardena, 2003), is critical for small firms facing the pressure of change and/or operating in a highly competitive industry. Product innovations are a vehicle for small firms

to realise a prize premium because the market views them as more attractive than the currently available products (Verhees and Meulenbergh, 2004); hence, innovative firms actively engage in creativity and experimentation to develop and introduce new products and services to the market. Such innovativeness demands actions to explore the unknown, capture opportunities, commit resources and investigate the future in order to introduce products and services ahead of the competition (Miller, 1983).

Market performance, defined as a firm's competitiveness in its markets compared to its competitors (Delaney and Huselid, 1996; Harel and Tzafrir, 1999), is used as the second performance measure for small firms. Market performance refers to a firm's success in business, i.e. growth in turnover, profitability and market share.

In the following, we link managerial innovativeness with small firms' product innovativeness and market performance and state our hypotheses.

## 2.4 Hypotheses development

*2.4.1 Managerial innovativeness and firms' product innovativeness.* Managerial innovativeness plays a prominent role in a small firm's capacity to generate and produce novel products and services that are central to the firm's performance. Evidence has shown that in small firms, the owners' innovativeness has a positive influence on firms' innovation and performance (Verhees and Meulenbergh, 2004). Furthermore, De Visser and Faems (2015) found a positive and strong impact of CEOs' innovative behaviour on small firms' R&D resource allocation. Managerial innovativeness reflects a firm's product innovativeness, i.e. firms' capacity to launch novel products and services to markets (Wang and Ahmed, 2004; Weerawardena, 2003), in the sense that highly innovative managers play a key role in fostering firms' innovativeness. Specifically, innovative managers generate novel ideas, capture opportunities and find novel ways to provide resources and support for the development of novel products or services and to transform them into markets (e.g. Wong and Boh, 2014; Kreiser and Davis, 2010). The authors suggest that the higher the managerial innovativeness, the higher the firm's product innovativeness and that the relationship between managerial innovativeness and a small firm's product innovativeness is positive. We hypothesised the following.

*H1.* Managerial innovativeness is positively related to small firms' product innovativeness.

*2.4.2 Managerial innovativeness and firms' market performance.* Since the managers of small firms are the main drivers of their firms' performance (Miller and Toulouse, 1985; Sadler-Smith *et al.*, 2003; Keats and Bracker, 1988) and innovation (Marcati *et al.*, 2008), managerial innovativeness has an impact on firms' market performance, i.e. on firms' relative competitiveness in their markets compared to their competitors (Delaney and Huselid, 1996; Harel and Tzafrir, 1999; Kreiser and Davis, 2010). Earlier studies, albeit not using the term managerial innovativeness, have reflected this. Westerberg *et al.* (1997) found that CEOs' characteristics had a considerable impact on small firms' market performance, financial performance and market orientation. A study by Verhees and Meulenbergh (2004) provided evidence that the innovativeness of small firms' owners has a positive influence on firms' market orientation. Moreover, Ghobakhloo *et al.* (2011) found that highly innovative CEOs affect SMEs' adoption of e-commerce applications, reflecting the firms' responsiveness to changing markets.

In small firms, the managerial (owner's, CEO's, entrepreneur's and founder's) influence is fundamental (Bandiera *et al.*, 2020), i.e. managers play a key role in setting goals and finding the means to foster firm competitiveness, success in markets and turnover. Thus, highly innovative managers are likely to generate, develop and implement novel ideas to foster their

firms' success in competitive markets. Based on the above literature and UET (Hambrick and Mason, 1984; Hambrick and Finkelstein, 1987; Wallace *et al.*, 2010), the authors assumed a positive relationship between managerial innovativeness and firms' market performance in the sense that highly innovative managers are likely to use their innovativeness when making firm-level decisions regarding the firms' profitability, market share and growth in turnover and hypothesised the following.

*H2.* Managerial innovativeness is positively related to small firms' market performance.

*2.4.3 Firm product innovativeness and market performance.* The introduction of new products to market is a highly effective means to increase the success of small firms (Shepherd and Ahmed, 2000) and a viable approach to realise a prize premium (Verhees and Meulenberg, 2004). Ledwith and O'Dwyer (2009) reported that new product performance, measured according to market share and financial profits, is a reliable predictor of performance for small firms. In addition, from a slightly different perspective, Ali *et al.* (1995) highlighted that small firms that can speed up their new product development also achieve a shorter break-even time.

Evidence from SMEs has provided similar evidence regarding product innovation and market performance. For instance, Wolff and Pett (2006) empirically demonstrated that SMEs that produce improved products are more likely to show improved growth and profitability. Similarly, SMEs that can increase the uniqueness of their new products will also achieve, for example, better sales volumes, profitability and market share (Avlonitis and Salavou, 2007). In summary, previous research on the relationship between firms' product innovativeness and their performance has suggested that firms that can develop and launch new and original products will attain improved market performance. Authors therefore hypothesised the following.

*H3.* Firms' product innovativeness is positively related to their market performance.

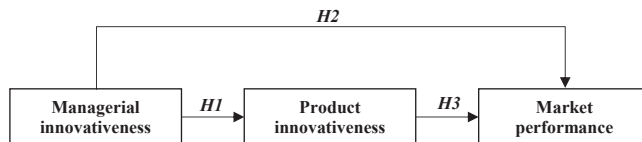
Figure 1 presents our research model.

### 3. Method

#### 3.1 South-eastern Finland as a logistic environment for small firms

In Finland, roughly 99% of the logistics firms are small firms (Statistics Finland, 2017), and many of them serve as subcontractors for large logistics companies. Logistic clusters, such as the Helsinki area, the west coast region and the south-eastern area, are located near ports, airports and railway cargo centres. These clusters attract both major players and SMEs in the field of logistics. The focus of this study is on South-Eastern Finland, which involves two logistics hubs, Kymenlaakso and South Karelia, which interconnect altogether approximately 900 logistics actors and companies.

Overall, the economy of these regions is highly dependent on logistics. Specifically, South-Eastern Finland comprises logistics centres in three locations: a port for export cargo and transit traffic in Kotka, railway logistics and a cargo terminal in Kouvola and a multimodal



Source(s): Figure created by author

Figure 1.  
The research model

terminal in Lappeenranta. South-Eastern Finland is an attractive environment for a variety of small logistic companies, the majority of which operate in road transportation.

### 3.2 Sample and data collection

To test the research hypotheses, a survey research strategy was used. Quantitative survey data were collected via telephone by an external research service provider, who made personal phone calls to each of the respondents in May and June 2017. The sample group for the survey consisted of small logistics firms operating in South-Eastern Finland. One informant per firm, either the entrepreneur, the CEO or a person responsible for managerial issues, was targeted. Altogether, 275 companies were contacted, out of which 93 responses came from small logistics firms, leading to a response rate of 33.8%.

The distribution of respondents by job title was as follows: 84.9% (N = 79) were CEOs; 3.2% (N = 3) were other managers; 2.2% (N = 2) were experts/white collar workers and 9.7% (N = 9) were classified as “other” and included an owner, an entrepreneur and a board member.

Table S1 displays the distribution of the respondents according to the NACE statistical classification of economic activities in the European Community. Based on the results, 69.9% (N = 65) of the respondents provided “freight transport by road and removal services”, 12.9% (N = 12) provided “support activities for transportation”, 4.3% (N = 4) provided “warehousing and storage” services, 1.1% (N = 1) provided “sea and coastal freight water transport” services and 11.8% (N = 11) operated in other segments of the logistics service industry.

The sample consisted of 93 small companies (1–49 employees). From the company ownership point of view, 63.4% (N = 59) of the surveyed companies were family businesses and 35.5% (N = 33) were non-family businesses (one missing response). Further, 89.2% (N = 83) of the respondents were company owners, whilst 10.8% (N = 10) were not.

### 3.3 Measures

All of the measures were based on a seven-point Likert scale. The wording of the items and anchoring of the scales for these measures are presented in Appendix.

*Independent variables.* Managerial innovativeness was measured with six items derived from the scale of individual innovative behaviour and the work of Scott and Bruce (1994). The items covered behaviour relating to searching for new ideas and opportunities, generating novel ideas and promoting and supporting the development of ideas in order to implement them in practice, such as new products, services, businesses and market share.

*Dependent variables.* The scale for the dependent variable market performance was adapted from Delaney and Huselid (1996), and it covered three items asking respondents to compare their firm’s success against that of other firms in the same sector. It could have been a potential constraint to use subjective performance evaluation. However, it was shown in the earlier literature that perceptual data on performance is a viable option when combined with a rigorous research design (for example, Howard, 1994; Minbaeva et al., 2012) since subjective measures tend to correlate positively with objective measures (see, for example, Delaney and Huselid, 1996; Kunze et al., 2013).

*Mediating variable.* Product innovativeness was measured with three items from Wang and Ahmed (2004). The respondents were asked to indicate their perceptions of how product and service innovativeness occurred in their organisations.

*Control Variables.* Five firm-related variables (firm age, turnover, number of employees, R&D activity and family ownership) were used as control variables to eliminate any effects they might have had on market performance. Company age was measured in terms of the number of years since establishment. Both the number of employees and turnover (in euros)

were used to measure the firm's size. Both size and age are typical control variables in innovation studies (Omri *et al.*, 2014). The number of employees participating in R&D activities reflected how active a firm was in that area. Whether the company was a family business or not was judged by the respondents to eliminate likely effects of ownership (Omri *et al.*, 2014).

To confirm the operational validity and psychometric robustness of the scales, the initial scales were pre-tested for content validity by four experts, whose insights and suggestions were subsequently incorporated into the final scales.

### 3.4 Assessment of bias

The data relied on self-reports, and thus, common method variance might have biased the findings. Common method bias (CMB) is of particular concern when respondents are asked to address items that relate to both the independent and dependent variables. Following relevant precedents from the literature (Minbaeva *et al.*, 2012), we took several steps to reduce the risk of such bias.

Firstly, to reduce any risk of respondents altering their answers to align with the expectations of others, the survey design and administration explicitly assured respondent confidentiality (Minbaeva *et al.*, 2012). We also consulted with practitioners in the field to improve the scale items and used clear wording and understandable terminology to keep the survey concise (MacKenzie and Podsakoff, 2012). The fact that the survey asked experienced respondents to assess concrete constructs further reduced the possibility of CMB (see MacKenzie and Podsakoff, 2012). Moreover, the anchoring of the scales varied in our survey (different for entrepreneurial orientation, product innovativeness and market performance), thus helping to further decrease the possibility of CMB (Podsakoff *et al.*, 2003; MacKenzie and Podsakoff, 2012).

To assess the risk of CMB further, we performed statistical analyses in line with Podsakoff *et al.* (2003) and followed the procedure suggested by Liang *et al.* (2008). A measurement model that included one method factor was also tested, allowing items to load both on their theoretical constructs and on a common method factor. Loadings on the method factor were substantially lower than those on the construct factors. In addition, our analyses with the partial least squares (PLS) method revealed high discriminant validity, which further decreases concern about CMB (Ahammad *et al.*, 2017). Taken together, these tests suggested that CMB was unlikely to be a major concern.

## 4. Results

The PLS method was used for the analyses (version 4.0.8.4 of SmartPLS; see Ringle *et al.*, 2022), following a process suggested in the literature (see, for example, Hair *et al.*, 2014, 2017). To identify multiple relationships between managerial innovativeness, product innovativeness, market performance and the control variables simultaneously, structural equation modelling (SEM) using PLS was deemed appropriate for the following reasons. Firstly, PLS is based on minimising the residual variance of the dependent variables. It therefore makes more modest demands on measures than other SEM techniques (Echambadi *et al.*, 2006; Hair *et al.*, 2014). In addition, PLS-based structural modelling can be utilised with smaller sample sizes (see Hair *et al.*, 2014). Based on the widely adopted “ten-times rule” (Hair *et al.*, 2014) our sample size is enough to conduct PLS-SEM analyses. The rule means that the minimum count of observations should be 10 times the maximum number of paths leading to the particular latent construct in the structural model. In our analyses, this is fulfilled as there are at maximum seven paths; that is, the minimum sample size being 70, whilst our sample size is 93.



PLS-SEM has been utilised widely in the literature covering different kinds of disciplines, including within innovation studies (e.g. [Dao and Strobl, 2019](#); [Zhang et al., 2019](#)).

#### 4.1 Correlation analysis

[Table S2](#) presents the means and standard deviations and provides a correlation matrix for the variables. As the matrix shows, there were significant correlations between the independent variable (managerial innovativeness), the mediating variable (product innovativeness) and the dependent variable (market performance). This supported the interconnectedness between the constructs of interest.

#### 4.2 Measurement models

To test the measurement models, we assessed the internal consistency and the discriminant validity.

*Internal consistency.* Measures of construct reliability (CR) and convergent validity represented the internal consistency. According to the CR test, all the constructs showed a value above the threshold (0.7, adopted by [Bagozzi and Yi, 1991](#); see [Appendix](#)). To test for convergent validity, we examined CR, the factor loading and the average variance extracted (AVE). Firstly, the loadings of all the items were high and statistically significant, meaning that they were all related to their specific constructs, verifying the posited relationships between the indicators and constructs. Secondly, the AVE measure exceeded the cut-off (0.50, see [Fornell and Larcker, 1981](#)) for all the constructs.

*Discriminant validity.* Discriminant validity indicates the extent to which any one construct differs from the others, and in its assessment, the AVE should be greater than the variance shared between that construct and the other constructs in the model, i.e. the squared correlation between two constructs ([Fornell and Larcker, 1981](#)). The constructs of our study fulfilled this condition, and the AVEs for all of the constructs were greater than the squared correlations.

In addition, we tested discriminant validity by means of the heterotrait-monotrait (HTMT) ratio following the procedure suggested by [Hair et al. \(2017\)](#). The results showed that the HTMT values for all pairs of constructs were below the threshold value of 0.90. Moreover, based on a computed bootstrapping procedure, all HTMT values were significantly different from one. These results support the discriminant validity of the studied constructs.

*Endogeneity and heterogeneity.* In addition to the usage of the set of control variables that account for part of the dependent variable's variance (see, e.g. [Ebbes et al., 2017](#)), we tested for the possible effect of endogeneity with the Gaussian copula approach ([Hair et al., 2017](#)). Based on the results, the added Gaussian copula terms had no statistically significant effect, indicating that endogeneity was not a problem in our model. For testing heterogeneity, a finite mixture model (FIMIX-PLS) was used ([Hair et al., 2017](#)). Based on it, a three-segment solution was taken under deeper investigation. Path analyses for each segment showed similar results for our baseline model, and heterogeneity seems not to bias our results.

In summary, the model assessments provided good evidence of validity and reliability for the operationalisation of the concepts.

#### 4.3 Testing the research model

To test the research model, we estimated a path model reflecting the posited relationships between managerial innovativeness, product innovativeness, market performance and the control variables. As [Table 1](#) shows, our research model could explain around 26% of the variance in product innovativeness and 36% of the variance in market performance.

**Table 1.**  
Testing the  
research model

Path	
<i>Control variables</i>	
Age → Market performance	-0.051
Turnover → Market performance	0.212
Employees → Market performance	-0.023
R&D share → Market performance	0.008
Family business → Market performance	0.163
<i>Mediating variable</i>	
Product innovativeness → Market performance	0.276**
<i>Independent variable</i>	
Managerial innovativeness → Product innovativeness	0.505**
Managerial innovativeness → Market performance	0.296**
$R^2$ for Product innovativeness	0.255
$R^2$ for Market performance	0.360
<b>Note(s):</b> ** Significance <0.01	
<b>Source(s):</b> Table created by authors	

The results showed (see [Table 1](#) and [Figure S1](#)) that the product innovativeness of the firm works as a partial mediator in the relationship between managerial innovativeness and the performance of the firm; thus, the effect of individual-level innovativeness (managerial) on market performance functions directly, as well as partially, through increased product innovativeness. More specifically, as suggested in [Hypothesis 1](#), the relationship between managerial innovativeness and the product innovativeness of the firm ( $B = 0.505, p < 0.000$ ), and between product innovativeness and market performance, our [Hypothesis 3](#) ( $B = 0.276, p < 0.005$ ) was positive and statistically significant. In addition, [Hypothesis 2](#) was supported, and the direct relationship between managerial innovativeness and market performance was positive and significant ( $B = 0.296, p < 0.005$ ).

In addition, we used a post hoc test suggested by [Hair et al. \(2017\)](#) to check for the robustness of the indirect effect. We found that the indirect effect of product innovativeness was significant based on  $p$ -values as well as confidence intervals. This provided additional support for the results presented above.

## 5. Discussion and conclusions

The aim of the present study was to extend understanding on the role of managerial innovativeness in small firms' performance regarding the product innovativeness and market performance of small logistics firms. Based on the results obtained using data from 93 small logistics firms in South-Eastern Finland, the findings showed that managerial innovativeness does have an impact on firms' product innovativeness and market performance. Specifically, there was a positive direct and statistically significant effect of managerial innovativeness on both the product innovativeness and market performance of a company. The findings also showed that firms' product innovativeness partially mediates the relationship between managerial innovativeness and firms' market performance. This was supported by the fact that, in addition to the direct effect of managerial innovativeness on market performance, part of the effect goes through increased product innovativeness. To the best of our knowledge, the setting studied here is unique. In the following, we first discuss the theoretical implications of the study, then highlight the main managerial implications and finally discuss the main limitations of our study.

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### 5.1 Theoretical implications

*5.1.1 Implications for managerial innovativeness.* Whilst the extant small firm managerial research has focussed on personality-trait factors (for example, Miller and Toulouse, 1985; Westerberg *et al.*, 1997; Lefebvre and Lefebvre, 1992; Scupola, 2009; Wallace *et al.*, 2010) as predictors of small firms' performance, this study focussed on managerial behaviour by highlighting the influence of managerial innovativeness (e.g. Wong and Boh, 2014) – the innovative behaviour of managers – on small firm product innovativeness and market performance. Consequently, this study extends the understanding on managerial factors, other than managers' personality traits, in relation to small firms' innovativeness and market performance. Whilst earlier research found a positive and strong impact of managers' innovation behaviour on SMEs' R&D resource allocation (De Visser and Faems, 2015), firms' market orientation (Verhees and Meulenbergh, 2004) and SMEs' R&D performance (Kraiczny *et al.*, 2015), our findings have strengthened and added to these findings by showing that managerial innovativeness has an impact on small firms' product innovativeness and market performance.

The impact of managers' innovativeness on small firms' performance has been acknowledged by scholars (De Visser and Faems, 2015; Ghobakhloo *et al.*, 2011) and is essentially involved in entrepreneurship (Sadler-Smith *et al.*, 2003). However, managerial innovativeness as a concept is rarely addressed in the small firm research although the micro-level origins of firm performance are receiving increasingly more interest amongst scholars (Marvel and Lumpkin, 2007; Fernandez-Serrano *et al.*, 2019). As managers can be differentiated in terms of their managerial innovativeness, firm performance depends on the degree of innovativeness the managers demonstrate (e.g. Wong and Boh, 2014). Whilst earlier research has identified individual differences in managers' innovativeness (Koellinger, 2008; Wang and Dass, 2017), it has not addressed managerial innovativeness in small firms. Thus, this study contributes to the prior small firm research (Sadler-Smith *et al.*, 2003; Covin and Slevin, 1988; Slevin and Covin, 1990; De Visser and Faems, 2015) by showing that managerial innovativeness reflects important managerial behaviour and aspiration, which can explain why some firms are open to novelty and innovative, whereas others are more coping oriented.

*5.1.2 Implications for small firms' innovation performance.* This study contributes and adds to the research on small firms' innovation performance (De Visser and Faems, 2015; Lefebvre and Lefebvre, 1992) and overall performance (Miller, 1983; Miller and Toulouse, 1985; Sadler-Smith *et al.*, 2003; Keats and Bracker, 1988; Wiklund and Shepherd, 2003; Ali *et al.*, 1995; Ledwith and O'Dwyer, 2009; Wolff and Pett, 2006) by proposing and showing that the impact of managerial innovativeness on small firms' performance is both direct and indirect and that the impact of managerial innovativeness is greater on firm product innovativeness than on market performance. These results resonate with the findings of de Visser and Faems (2015), who found that CEOs' innovation behaviour fosters R&D resource allocation and, thereby, firms' innovation performance. These findings also contribute to prior research which has focussed on the direct effects of certain management qualities, such as managerial innovativeness (e.g. Kraiczny *et al.*, 2015; De Visser and Faems, 2015; Ghobakhloo *et al.*, 2011) or entrepreneurs' competences (Iskamto *et al.*, 2020) on firm performance. Overall, the research regarding managerial factors in small firms is dispersed across the literature on entrepreneurship, small firms and SMEs, resulting in a lack of understanding regarding the role of managerial innovativeness, and managerial behaviour in general, in small firms' performance. Our study has provided a richer understanding of the role of managerial innovativeness in explaining small firms' performance.

### 5.2 Managerial implications

In discussing practical implications, this paper has highlighted the importance of actors in leading positions for small firms' performance and provides the following managerial implications.

*5.2.1 Implications for small firm managers.* By showing that the higher the managerial innovativeness is, the higher the small firms' capacity is to introduce novel products and services to the market and the higher their market performance is likely to be, this study aligns with earlier studies (e.g. Mom *et al.*, 2009) and suggests that the development of managerial innovativeness plays a central role for small firms aiming to increase their innovativeness and performance. Hence, small firm managers should develop practices to constantly evaluate and develop their managerial innovativeness, as a central form of the human capital of a small firm, in relation to the business environment in which they operate. Thereby, managers can learn to be more innovative, which is likely to improve firms' product innovativeness and lead to higher firm performance.

*5.2.2 Implications for local actors.* This research provides implications for local authorities and stakeholders who oversee regional development and vitality initiatives. By showing that managerial innovativeness plays a central role for small firm innovativeness and performance, this study suggests that in order to maintain and foster regional vitality, attention should be directed to small firms and to managerial innovativeness in these firms in particular. When a region is dependent on specific small firm-oriented industry, such as the logistics industry, the development of managerial innovativeness should be considered and fostered by providing education and training for small firm managers on creativity and innovativeness. In addition to local authorities, entrepreneurship associations should also organise training and education for small firm managers. Such support for small firms would strengthen regional productivity and economic stability.

*5.2.3 Implications for regional innovation systems.* As small firms are central actors and developers in local innovation systems and clusters, higher managerial innovativeness would, on one hand, motivate small firm managers to participate in building and maintaining local clusters and innovation system. This is likely to increase inter-firm collaboration and learning from and with others, the sort of collaboration that is important in small firms in particular. On the other hand, higher managerial innovativeness would benefit the establishment, maintenance and development of regional innovation systems as innovative managers integrate their ideas, expertise and knowledge, as well as firm capacities, to capture business opportunities and face the business challenges.

Overall, a better understanding of the factors that enhance small firms' performance helps the managers of those firms to develop and direct their innovativeness to speed up their firms' capacity to produce innovative products and services as well as to increase market share and competitiveness in relevant markets. In addition, local authorities and entrepreneurship associations may direct development activities and training towards managers' innovativeness, thereby increasing the success of small firms and, indirectly, regional productivity and economy.

### 5.3 Limitations and future studies

One limitation of this study concerns the generalisability of our findings. Since the sample consisted of small firms from only one specific industry – the logistics industry – it is important to discuss whether our findings can be generalised to other industries. Theory (Miller and Toulouse, 1985; Keats and Bracker, 1988; Sadler-Smith *et al.*, 2003) and empirical findings (Wallace *et al.*, 2010; De Visser and Faems, 2015) relating to small firms has shown that in small firms, the actors in powerful position (CEOs, entrepreneurs, owners) are the key drivers of firms' performance regardless of the industry in which they

operate. Furthermore, as managers in small firms share the specific nature of a managerial environment that is not industry specific, it is plausible to expect that results would be similar in other industries. Moreover, based on previous literature, it could be argued that in terms of the different aspects of management (Rahman, 2008: quality management or Zhu *et al.*, 2012: applying new technology), the logistics sector is not substantially different from other industries. However, future studies could consider very different industries. Another question regarding the generalisation of our findings is that our sample is limited to one specific region – South-Eastern Finland. Since small logistics firms in Finland congregate around large logistics centres and are flexible to move from one location to another, the authors expect that our findings would be generalisable to other logistics regions as well as to countries with similar business environments. This opens avenues for future studies to investigate small firms in a variety of locations and business environments.

Finally, the authors limited the focus of our study to managerial innovativeness and ignored contextual factors, such as environmental dynamism (Omri, 2015), that might influence the relationship between managerial innovativeness and small firms' performance. In future research, it would be interesting to study how managerial innovativeness and a competitive environment interact in relation to firms' performance. Thus, scholars could test whether the degree of competitiveness in the environment moderates the relationship between managerial innovativeness and firms' product innovativeness and market performance.

Taken together, by investigating the role of managerial innovativeness for small firms' performance in the logistics industry in Finland, this study suggests that the small firms with innovative managers likely achieve higher product innovativeness and market performance.

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Appendix

Concept	Item	Factor loading	CR	AVE
Entrepreneurial innovativeness	<i>To what extent do the following statements on your personal characteristics are true (1 = poorly, 7 = greatly)</i>		0.89	0.58
	I search out new ideas and opportunities	0.761***		
	I generate creative ideas	0.783***		
	I promote and champion ideas to others	0.825***		
	I investigate and secure funds needed to implement new ideas	0.490***		
	I develop adequate plans and schedules for the implementation of new ideas	0.812***		
Product innovativeness	I am innovative	0.835***	0.94	0.84
	<i>To what extent do the following statements on innovativeness apply to your company? (1 = completely disagree, 7 = completely agree)</i>			
	In new product and service introductions, our company is often first-to-market	0.938***		
	Our new products and services are often perceived as very novel by customers	0.948***		
	In comparison with our competitors, our company has introduced more innovative products and services during the past three years	0.860***		
Firm performance	<i>Compared to the companies on your field of business, how would you rate the success of the market performance of your company during the past year in the following areas (1 = poor; 7 = excellent)?</i>		0.90	0.76
	Growth in turnover	0.852***		
	Profitability	0.892***		
	Market share	0.866***		

**Table A1.**  
Measurement items,  
CR and AVE

**Note(s):** \*\*\* Statistically significant at 0.01 significance level  
**Source(s):** Table created by authors

Supplementary material

Activities	Percent	N
Freight transport by road and removal services	69.9	65
Sea and coastal freight water transport	1.1	1
Warehousing and storage	4.3	4
Support activities for transportation	12.9	12
Other	11.8	11
<i>Total</i>	<i>100.0</i>	<i>93</i>

**Table S1.**  
Economic activities of  
the respondents

Source(s): Table created by authors

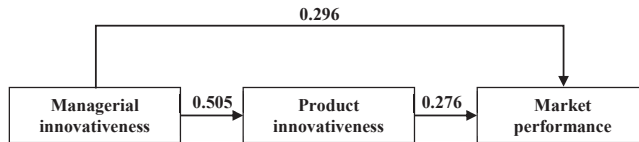
Variable	Mean	SD	1	2	3	4	5	6	7
1. Age	25.1	21.6							
2. Turnover	1.13	1.4	0.026						
3. Employees	8.3	10.4	0.134	0.831**					
4. R&D share	2.26	2.45	0.031	0.463**	0.447**				
5. Family business	1.38	0.51	-0.215*	-0.026	0.098	0.141			
6. Managerial innovativeness	5.16	1.19	-0.137	0.247*	0.202	0.202	-0.125		
7. Product innovativeness	3.64	1.76	-0.006	0.169	0.259*	0.321**	0.092	0.536**	
8. Market performance	4.29	1.34	-0.130	0.306**	0.241*	0.246*	0.173	0.397**	0.512**

Note(s): \*\* Correlation is significant at the 0.01 level

\* Correlation is significant at the 0.05 level

Source(s): Table created by authors

**Table S2.**  
Correlation matrix



Note(s): Control variables are omitted for clarity reasons

Source(s): Figure created by author

**Figure S1.**  
The research model  
and significant paths

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