*Article*

# Knowledge-Based Human Resource Management, Logistics Capability, and Organizational Performance in Small Finnish Logistics Service Providers

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**Abstract:** *Background:* In the current knowledge age, the performance of logistics firms increasingly depends on knowledge and capabilities they can leverage in value-creation processes. The objective of this paper is to investigate the relationship between knowledge-based human resource management (HRM) practices and organizational performance mediated by logistics capability. *Methods:* Data from 93 small Finnish logistics service providers was collected by a questionnaire survey. Structural equation modeling and partial least squares analysis were used to test the hypothesized relationships between HRM practices and the organizational performance of logistics companies, as well as the mediating impact of logistics capability. *Results:* The results demonstrate that logistics capability fully mediates the relationship between HRM practices and the organizational performance of small logistics companies. Each of the three knowledge-based HRM practices—knowledge-based recruitment, training and development, and motivation—significantly influences logistics capability, which is, in turn, associated with the organizational performance of companies. *Conclusions:* This paper is one of the few among discussing knowledge-based HRM practices in logistics service research. The paper contributes to the literature on logistics by demonstrating the value of knowledge-based HRM practices in acquiring, developing, and leveraging knowledge to create organizational capabilities and ensure organizational performance. This study provides an improved understanding of the role of HRM and the resulting logistics capability in the performance of small logistics service companies.

**Keywords:** logistics capabilities; HRM practices; knowledge management; performance; small logistics service companies; questionnaire survey; Finland

## 1. Introduction

In today's competitive scenario, the success of companies increasingly depends on the capacity to simultaneously incorporate flexibility and efficiency in their supply chains [1]. To achieve this objective, companies need to strategically balance a focus on their core competencies with the use of outsourcing. Such a strategy is generally supported by the digitalization of business activities through the implementation of business process automation and collaborative planning that allows one to achieve greater supply chain visibility, better asset utilization, and greater delivery efficiency, which lead to customer satisfaction [2]. In this context, the efficient management of physical supply chain assets is no longer enough to ensure competitive advantage, as the flows of data, information, and knowledge in the supply chain have become of strategic importance [3]. The dynamics described above have affected companies of different sizes, from large to small and micro, operating in different sectors. In fact, the digitalization and knowledge creation/sharing

processes, albeit with different intensities, have an impact on all companies operating in a supply chain, regardless of their size [4].

The logistics service industry followed a similar transformation dynamic with a number of driving forces that are reshaping the sector worldwide. A recent report by Langley and NTT DATA [5] indicated that the digitalization of supply chain activities, new ways of collaborating, sustainability, and rapidly evolving customer expectations have all spurred the transition of logistics companies from an asset-based to a knowledge-based approach. Accordingly, these trends are pushing logistics companies to equip themselves with new skills and competencies to manage information and knowledge flows with other supply chain actors [6]. However, understanding the role of knowledge and human resources management in the logistics industry still remains a neglected topic in the literature [7,8].

In addition, the COVID-19 pandemic has clearly put in evidence that wider control and visibility of supply chain layers is necessary, especially when activities are in different geographical areas [9]. Logistics providers may be a critical factor in absorbing supply chain disruptions by developing innovation-related capabilities [10]. The lesson learned from the pandemic indicates that new capabilities and professional skills are required to manage logistics operations in the future. From this point of view, it seems that logistics companies have two fundamental options to survive in a turbulent environment and improve their market positions. Logistics companies may leverage their existing capabilities or acquire completely new capabilities in the area of people, processes, and technology. In fact, while relatively basic (physical) capabilities were sufficient to compete in the early stages of the evolving process of the logistics industry, much more complex and differentiated capabilities based on knowledge are required to compete in the current competitive scenario (e.g., strategic supply chain planning, integration into the customer's supply chain network, enhanced real-time visibility of shipments through digital applications and risk management). In this context, the management of people is one of the most important strategic capabilities and challenges for modern logistics companies to maintain or create a competitive advantage [11,12].

In this paper, we argue that knowledge-based human resource management (HRM) practices may provide a viable solution for facing such challenges. They are concerned with identifying and hiring new employees with a sufficient, up-to-date set of skills and knowledge, developing and updating their knowledge and skills, and establishing a compensation scheme that promotes activities aligned with the company's overall development and performance targets (e.g., Inkinen et al. [13]; Kianto et al. [14]). Overall, this study argues that knowledge-based HRM practices in logistics companies affect employee availability, skills, and motivation and thus, improve logistics capabilities, which may have a positive impact on the organization's performance and competitiveness.

Thus, it seems plausible that logistics capability could also have a mediating effect between knowledge-based HRM practices and the organizational performance of logistics companies. However, the role of HRM has been mostly overlooked within the extant supply chain management and logistics industry research literature [15]. This is a significant knowledge gap, considering the fundamental changes that have taken place in the logistics service industry over the last decades.

Although the interest in the implementation of KM practices in the logistics service sector increased over the last few years, only a few studies have examined KM in logistics companies (e.g., Durst and Evangelista [8,16]; Wahab et al. [17]). The existing studies do converge on the idea that the adoption of KM practices is likely to yield positive outcomes for logistics companies (e.g., Neumann and Tomè [18]), but overall, there is very little evidence in this regard, especially in the context of small and micro-sized logistics companies. This is surprising because the majority of freight transport and logistics companies are small and medium-sized firms (52.4%) in the European Union [19]. The Finnish logistics market is a good example in this respect because most transport and logistics companies are small and medium-sized companies (62.9%). In addition, small

logistics companies in Finland have played a critical role in recent years because large logistics companies have increased the use of sub-contracting as part of their service production strategies [20].

Accordingly, the main objective of this study is to investigate the relationship between knowledge-based human resource management (HRM) practices and organizational performance, mediated by logistics capability in small and micro-sized Finnish logistics companies. To achieve such an objective, the hypothesized relationship between knowledge-based HRM practices and organizational performance, mediated by logistics capability, has been empirically tested using data collected from 93 small Finnish logistics companies.

The remainder of this paper is organized as follows: the next section provides a literature review on knowledge-based HRM practices and logistics capability. Section 3 presents the hypotheses development process, while Section 4 provides details on the methodology adopted to test the hypotheses identified. Section 5 presents and discusses the results achieved. Finally, the concluding section provides the theoretical and practical contribution of the study as well as its limitations and directions for future research.

## 2. Literature Review

### 2.1. Knowledge-Based HRM Practices

The knowledge-based view of the firm asserts that organizational performance is derived from a firm's knowledge-related resources and capabilities [21,22]. From the knowledge-based perspective, a firm's capability is dependent on its employees' will and ability to execute organizational activities in a skilled manner, and thus, human resources are the key drivers of organizational performance [23,24].

HRM is a management approach that focuses on an organization's employees [25] and is integral to organizational KM (e.g., Hislop [26]; Scarbrough [27]). Knowledge-based HRM practices are tailored to enhance knowledge creation, sharing, and utilization in an organization [14,28]. In particular, they consist of recruiting and hiring employees who have the right expertise and the ability to collaborate and develop, training and developing their knowledge so that they can reach their potential, and providing appropriate compensation to motivate them to create, share, and use their knowledge (e.g., Malik et al., 2020 [29]; Inkinen et al. [13]; Kianto et al. [14]). Knowledge-based HRM practices are based on traditional HRM practices [30] but take a fundamentally different approach: knowledge-based HRM practices focus on filling the organization's knowledge gaps rather than its open positions, the proactive development of employee competence rather than performance monitoring, and the provision of compensation for KM-enhancing activities rather than merely meeting short-term financial goals.

Three key knowledge-based HRM practices are likely to be especially important for small logistics companies. First, knowledge-based recruiting takes an organizational approach to hire new employees who have not only expertise appropriate to the work role but also social skills and development potential. Because knowledge is a socially constructed issue and learning takes place primarily in a collaborative context [24], it is essential to ensure that a prospective employee has the ability to collaborate. Because working effectively under changing conditions requires the ability to learn and develop new knowledge, these future-oriented attributes should also be seriously considered [31]. Knowledge-based recruitment supports knowledge building and creativity because newcomers infuse the target company with complementary knowledge when they are able and willing to integrate with incumbents [32].

Systematic training and development opportunities for employees are important because it provides them with new knowledge to augment their existing knowledge base and to keep up with recent trends and development, particularly in dynamic knowledge-intensive industries [33]. To maximize their potential, it is important that employees are encouraged to assume ownership over their own development and that versatile methods, ranging from formal courses to on-the-job development learning opportunities and distance e-learning approaches, are offered [34]. Such training and development support dynamic

knowledge processes and learning, which in turn spark knowledge creation [35] and enable the sharing and utilization of newly acquired knowledge. The provision of training signals an organization's care, trust, and commitment toward employees and may also help in competence retention [33]. In addition, implementing practices to motivate employees to share, create, and apply knowledge also has a direct influence on knowledge process activities; it steers and directs employee behavior in ways that support organizational knowledge building and leverage [36]. Both tangible (e.g., bonuses or one-off rewards) and intangible (e.g., status and recognition) incentives could be used to motivate employees to share, create, and apply knowledge [27,37]. All of these HRM practices are likely to function as important enhancers of employee behavior, which will, in turn, boost the firm's overall ability to deliver value to customers.

Overall, knowledge-based HRM practices improve the firm's performance by increasing knowledge processes, such as knowledge creation, sharing, and utilization [38–41], as well as the organization's intellectual capital [14]. These practices also facilitate an increased level of organizational learning [42,43] and innovation performance (e.g., Inkinen et al. [13]; Kianto et al. [14]).

*2.2. Logistics Capability*

As a result of the changes in the focus of the logistics companies' business model (from physical to knowledge and information approach), many companies transitioned from the provision of a few basic services to the supply of a wider range of more complex and knowledge-intensive services (e.g., Evangelista [44]; Cho et al. [45]). This process has relevant consequences for the service capabilities of logistics companies because the expansion of the range of services provided requires adequate capabilities [46]. Logistics capability has been defined as an industry-specific key competence within the logistics service sector and the backbone of organizational performance and competitiveness in logistics companies [47–49].

In this regard, KM capabilities are critical for logistics service differentiation [50] and may be considered an important tool for optimizing costs and meeting customer requirements [8,18]. Knowledge-based HRM practices, as a key component of organizational knowledge management (KM) practices [51,52], play a central role in the acquisition, creation, development, and utilization of knowledge for organizational value creation. Studies conducted in several industries other than the logistics service industry have demonstrated that knowledge-based HRM practices can be used to develop industry-specific capabilities (e.g., Theriou and Chatzoglou [43]; Delaney and Huselid [53]) and that knowledge resources and KM have positive effects on firm performance (e.g., Bogner and Bansal [54]; Inkinen et al. [13]).

In addition, because supply chain processes increasingly require the exchange of information, logistics companies must possess the necessary capabilities to coordinate an increasing number of supply chain activities in different markets [55] and thus, better serve their customers and remain competitive in the marketplace [56]. Such capabilities are absolutely important for logistics service providers to ensure customer satisfaction at the lowest possible costs. In this area, the identification of gaps between the service offered by logistics companies and customer expectations is critical, as indicated by the study of Kadłubek and Jereb [57]. On the other hand, customer pressure is an important driver in building up and improving a logistics company's flexibility-oriented organizational culture in the context of green innovation, as indicated by the research of Chu et al. [58].

Any firm seeking to obtain a competitive advantage may use two different types of resources: (1) assets and (2) capabilities, which enable asset exploitation in value creation [59]. According to Day [60], capabilities are the " . . . complex bundles of skills and accumulated knowledge, exercised through organizational processes, which enable firms to coordinate activities and make use of their assets".

Lai [48] defined logistics capability as " . . . the ability of logistics service providers (LSPs) to create and deploy resources to satisfy the logistics needs of their customers

in pursuit of better service performance". According to Olavarrieta and Ellinger [49], distinctive logistics capabilities involve " . . . a complex combination of physical assets, organizational routines, people skills and knowledge, which are not obvious, and which require time to develop and integrate". Logistics capabilities may improve performance and offer a competitive advantage because they provide value to the customer, are not evenly distributed among other competing companies, and are difficult to imitate [61].

In deploying their resources, logistics companies may exploit operational capabilities, such as distribution, order fulfillment, tracking and tracing, storage, and freight forwarding to manufacturing and retail supply chains [46,48]. Several other studies have identified examples of logistics service capabilities. For example, Fawcett et al. [62] emphasized the importance of on-time delivery and cost efficiency in complex networks as critical capabilities in managing logistics and supply chain processes. Timely response to customer requests, on-time service delivery, supporting customers in achieving their own objectives, and sharing information with other supply chain partners are all examples of the logistics capabilities of a logistics company [63]. The effective use of these capabilities can satisfy customer needs, leading to superior performance [64,65]. This highlights the fact that logistics capabilities are the backbone of any logistics company [10,66,67]. Lu [68] has identified purchasing, operations, human resources, and financial management as the key capabilities of a logistics company. Other operational capabilities include value-added services, service reliability, customer responsiveness, relationship building, information integration, and flexibility [69–71]. Liu et al. [72] identified strategic, operational, and networking capabilities as the most critical for a logistics company. Shang [73] and Panayides [74] investigated which capabilities of a logistics company were considered valuable by customers. Their findings indicate the beneficial role of organizational learning in achieving better service quality and financial performance. The approach proposed by Esper et al. [75], which summarizes the most frequently cited logistics and supply chain capabilities, considers the following four general logistics capabilities: customer focus capability, supply management capability, integration capability, and information exchange capability. The study of Premkumar et al. [76] concluded that logistics providers in the future need to leverage the capability of employees and provide added value to shippers. Supply chain transformation and integration across the supply chain is another management direction for the future of the logistics industry. Herold et al. [77] investigated the reactions to COVID-19 of logistics service providers. The findings show that one of the most important reactions to the pandemic effects consists of optimizing personnel capacity. In an attempt to explain how learning occurs in the collaborative retailer–logistics service provider relationship, Haag et al. [78] argued that the interaction of absorptive and desorptive capacities indicates positive outcomes of learning capabilities, such as improved cost efficiencies in warehouse operations, better customer services, and improved long-term strategic planning.

On the basis of the literature discussion presented above, it is possible to identify a number of research variables that can be used for the generation of hypotheses. In addition to the knowledge-based HRM practices construct, recruitment practices, training and development practices, and motivating practices were identified. Logistics capability and organizational performance were also considered. Table 1 provides definitions and literature sources for each of the six constructs identified.

**Table 1.** Constructs and definitions.

| Construct | Definition | Reference(s) |
|---|---|---|
| Knowledge-based HRM practices | Knowledge-based HRM practices are tailored to enhance knowledge creation, sharing, and utilization in an organization. | [14,28] |
| Knowledge-based recruitment practices | Recruiting and hiring employees who have the right expertise and the ability to collaborate and develop. | [13,14] |

**Table 1.** *Cont.*

| Construct | Definition | Reference(s) |
|---|---|---|
| Knowledge-based training and development practices | Training and developing employees so that they can reach their knowledge potential | [13,14] |
| Knowledge-based motivating practices | Providing appropriate compensation for employees to motivate them to create, share, and use their knowledge. | [13,14] |
| Logistics capability | A specific capability of logistics that enables delivery of customer orders on time, reduction of response time in the supply chain, supply chain integration, communication with supply chain partners, and information sharing with suppliers and customers. | [75] |
| Organizational performance | Organizational performance is the degree to which an organization has superior performance relative to its competition in areas of turnover growth, profitability, and market share. | [53] |

## 3. Hypothesis Development

A number of empirical studies have suggested a positive relationship between intra-firm capabilities and organizational performance (e.g., Flöthmann et al. [79]; Ray et al. [80]; Shang and Marlow [81]; Liu et al. [72]). The Global Logistics Research Team [82] empirically demonstrated a positive correlation between logistics capability and performance enhancement. According to Yang [83], the service and flexibility capabilities of logistics companies significantly affect their organizational performance. Yang et al. [63] argued that service capability has a positive relationship with the performance of logistics companies. The evolving process of capability development provides logistics companies with the opportunity to differentiate their services and improve their organizational performance and market position in the long run [56,84]. On the other hand, Liu and Lyons [46] found that recruitment practices play a key role in Taiwanese and UK logistics companies, developing logistics capabilities and facilitating the design and provision of services that will satisfy the needs of different customers. The evidence by Ding et al. [85] shows that training and development, recruitment, and selection significantly contribute to logistics and supply chain competence improvement in a sample of Chinese logistics companies. Ding et al. [85] suggested that conventional HRM practices designed to reward individual performance might not be suited to nurturing team-based logistics and supply chain competencies. Such evidence is in line with the literature review conducted by Keller and Ozment [86] on personnel issues in logistics, which identified recruitment as an area that needs to be further elaborated to determine the most valuable recruitment techniques.

Organizations utilize knowledge-based HRM practices to hire candidates with the most suitable knowledge, development potential, and social intelligence; train and develop them to reach their full knowledge potential; and offer compensation for activities that motivate employees to create, share, and use knowledge [13,38,39,52]. In order to achieve competitive advantage and superior logistics capabilities through their employees, logistics companies must utilize contemporary recruitment and selection practices [87]. A recent World Bank survey analyzing skills and competencies in logistics globally confirmed this need. The survey revealed that when recruiting new staff, issues related to "knowledge" were ranked as highly important [88]. This led to the conclusion that the ability to recruit high-quality staff in logistics can help to create and maintain a competitive advantage.

The COVID-19 outbreak reinforced this trend showing that the development of appropriate firms' capabilities is critical to recovering from supply chain disruptions and building

resilience. The pandemic spurred companies to dynamically leveraging capabilities and strategies. This means that standard capabilities with basic functional activities are not enough, and additional capabilities such as response and recovery abilities are required, especially in the area of digital readiness and data sharing [89].

As in many other sectors, the rapid disruptive effects of the pandemic had a dramatic impact and posed several challenges for logistics service providers. In addition, the restrictions adopted to face the epidemic outbreaks negatively affected logistics providers [90]. The effects of COVID-19 on these companies showed that restrictions and quarantine measures seriously hampered transport flows [91] and airport activities [92,93].

In this context, adaptive capabilities are necessary to improve resilience in extreme conditions. Among these capabilities, Hohenstein [94] included the capability to distribute new knowledge and to recruit and train employees effectively.

Knowledge-based recruiting offers an innovative approach that suits companies operating in the current knowledge economy much better than traditional recruiting and selection practices [95]. First, in today's knowledge-intensive workplace (e.g., professional services, logistics, and trade), tasks are often unique and non-repetitive, and their accomplishment requires multi-skilled employees and cross-functional collaboration. This complex task structure is even more evident in the logistics sector as a whole [88], as well as in small logistics companies, which face resource constraints and are forced to utilize multi-skilled employees who can participate in problem-solving and various other tasks, from truck driving to the use of ICT tools [96]. Second, a competitive edge is achieved by inventing something new, whether it is a business model, management practice, process, product or service innovation, or any other innovative use of an organization's knowledge base. In order to put knowledge to work and make innovation flourish, companies must recruit and select employees with great collaborative skills and development potential, as well as dismantle highly bureaucratic and hierarchic structures which inhibit co-creation and cooperation [16].

After selecting the best-fitting employees, companies must utilize knowledge-based training and development practices to ensure that these employees' knowledge and skills are continuously updated to meet the changing demands in the logistics services industry [79]. The determinants of training needs in the sector are related to developing new professionals who will be able to integrate activities and processes both within and outside the company [97]. In the logistics service industry, the availability of employees with logistics skills is of strategic importance because training and development directly affect the management of the supply chain [98]. In the logistics service industry, managers are required to adopt a wider strategic view rather than the narrow operational approach that was once used. This extended managerial role and responsibility require different and enhanced skills, training, and development [99]. The skills and expertise of logistics and transport managers can be enhanced through adequate training and development [100]. From this point of view, logistics and supply chain management skills are essential in improving the performance of logistics companies.

Knowledge-based motivation practices ensure that logistics capability is supported by employees' willingness to create, share, and apply the knowledge that concerns, for instance, the best practices related to one's daily work or the operational capability of the entire supply chain. Knowledge-based motivation encourages employees to create new knowledge, share their individual knowledge with others, and utilize their individual knowledge in their work more actively [40]. These knowledge processes support overall organizational knowledge and competence development [36]. Malik et al. [29] suggest key motivation-enhancing HRM practices consist of competency-based performance management and measurement and rewards. The previous literature has also pointed out that incentive systems that are consistent with a company's objectives and goals have a positive influence on operational performance and employees' organizational commitment [101]. Moreover, companies can change their organizational cultures by employing a suitable compensation scheme [102]. Along these lines, knowledge-based motivation acts as an

incentive for employees of logistics companies to create, share, and utilize their professional knowledge, which will, in turn, support the development of the company's logistics capability and organizational performance. Companies can even establish a culture of constant capability development by re-tooling their compensation systems to promote KM-related activities better.

The existing literature has highlighted the influence that HRM practices have on organization-level performance through the development of different organizational capabilities. For instance, Flöthmann et al. [79] argued that training and organizational learning (knowledge access, intensity, and use) impact performance by enhancing individual competencies and organizational knowledge. Along the same lines, Lin and Kuo [42] found that when assessed within the same structural model, HRM did not directly influence firm performance, but there was a significant indirect relationship that was fully mediated by organizational learning and KM capability. Along the same lines, Theriou and Chatzoglou [43] obtained evidence that HRM practices support industry-specific capabilities (service-commercial capabilities) through organizational learning and KM. They also found that industry-specific capabilities were significantly related to financial and non-financial organizational performance figures. Other studies have also found an indirect relationship between HRM and organizational performance: the results of Chen and Huang [40] suggest that the link between HRM practices and organizational innovation performance is achieved through improved KM capacities, while Kuo [103] illustrates that the relationship between HRM practices and organizational performance is mediated by organizational learning, innovation capability, and KM capability. Kianto et al. [14] found that the impact of knowledge-based HRM and innovation performance was mediated by the human, structural, and relational capital of the firm. Furthermore, Zhou et al. [33] discovered that absorptive capacity and application of knowledge require distinct capabilities, which can be developed by specific HRM practices.

In sum, considering the existing evidence on the mediated relationship between HRM practices and organizational performance, it's very likely that logistics capability can explain the relationship between knowledge-based HRM and performance in the logistics service industry. Thus, the following research hypotheses are posited (see Figure 1 for the research model).
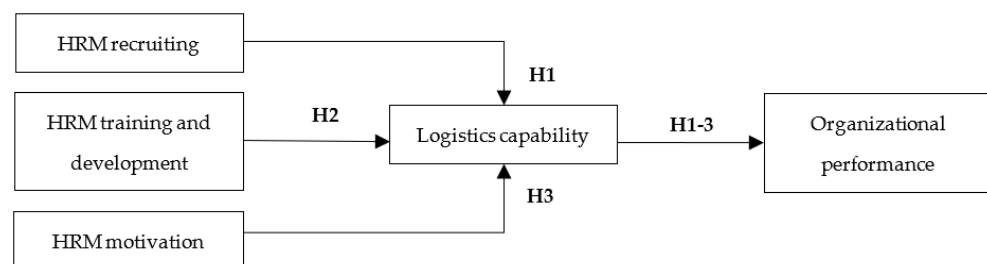


**Figure 1.** The research model.

**Hypothesis 1 (H1).** *The logistics capability of logistics companies positively mediates the relationship between the application of knowledge-based recruitment practices and organizational performance.*

**Hypothesis 2 (H2).** *The logistics capability of logistics companies positively mediates the relationship between the application of knowledge-based training and development practices and organizational performance.*

**Hypothesis 3 (H3).** *The logistics capability of logistics companies positively mediates the relationship between the application of knowledge-based motivating practices and organizational performance.*

## 4. Methodology

### 4.1. Sample and Data Collection

To test the research hypotheses, the survey research strategy was used. Quantitative survey data were collected by an external research service provider via telephone in May and June 2017, per the exhaustive instructions of the research team. The phone calls were carefully structured, which enabled the interviewer and respondent to go through the survey together over the telephone. The interviewer filled in the responses, and the respondents had the chance to interrupt, for example, if there was anything they wanted to ask or clarify. The anchoring of the scale was described before each scale, and if needed, this was repeated before each individual item. The target group for the survey was small and micro-sized logistics service companies operating in southeastern Finland. One informant per company, either the entrepreneur, Chief Executive Officer (CEO), Human Resources (HR) manager, or the person responsible for HR issues, was interviewed. Altogether 275 companies were contacted, and 93 valid responses were received, yielding 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," for instance owner, entrepreneur, or board member.

By using the statistical classification of economic activities of the Eurostat [104], the distribution of respondents is as follows: 69.9% ($n = 65$) of the firms 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"; 1.1% ($n = 1$) provided "sea and coastal freight water transport"; and 11.8% ($n = 11$) operated in other segments of the logistics service industry.

The distribution of the companies according to the European Commission SMEs definition [105] is as follows: 74.2% ($n = 69$) micro-companies and 25.8% ($n = 24$) small companies. Of the micro-companies, only one represented a solo entrepreneur (0 employees), 29 employed one to three employees, and 39 employed four to nine employees. From a 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). Furthermore, 89.2% ($n = 83$) of the respondents were company owners, while 10.8% ($n = 10$) were not.

### 4.2. Assessment of Bias

Because the data relied on self-reported measures, common method variance may have biased the findings. Common Method Bias (CMB) is of particular concern when survey respondents are asked to address items addressing both independent and dependent variables. Following examples from the extant literature (e.g., Minbaeva et al. [106]; Vaccaro et al. [107]), several steps were taken to reduce the risk of such bias.

First, during the design and administration of the survey, respondent confidentiality was explicitly assured (e.g., Minbaeva et al. [106]; Tsai and Ghoshal [108]). This reduced the risk of CMB by making respondents less likely to alter their answers due to their perceptions regarding how others might have expected them to answer. In addition, the scale items were improved in collaboration with practitioners in the field. This helped to incorporate clear and proper grammar and keep the survey compact [109]. Moreover, the fact that highly experienced respondents (regarding the topic) assessed concrete constructs decreased the possibility of CMB [109,110]. Moreover, the anchoring of the scales varied in the survey (i.e., this differed for organizational performance, knowledge-based HRMs, and logistics capability) to decrease the possibility of CMB [109]. Finally, the order of the constructs in the questionnaire ensured that the questions about dependent variables were asked before questions about independent variables [109].

Second, after receiving the responses, statistical analyses were performed. Harman's one-factor test [111] was used to assess the risk of CMB, and a principal component analysis that incorporated all the items from all the constructs were utilized. The solution was utilized to determine the number of factors required to account for the variance in all

the items, and a solution with the largest factor accounting for 36% of the variance was determined. In addition, in line with Podsakoff et al. [111] and following the procedure suggested by Liang et al. [112], a measurement model that included one method factor was also tested. In this model, items were allowed to load on both their theoretical constructs and a common method factor. The loadings on the method factor were substantially lower than the loadings on the construct factors. Taken together, these tests suggest that CMB was unlikely to be a serious concern in this study.

### 4.3. Measures

All the measures were based on a seven-point Likert scale. The anchoring of the scales, as well as the wording of all items, are presented in Appendix A.

Independent variables. The scales for knowledge-based HRM practices, i.e., recruiting (three items), training and development (three items), and motivation (three items), were adapted from Inkinen et al. [13] and Hussinki et al. [52].

Mediating variable. The scale containing five items intended to measure the specific logistics capability of logistics companies was adapted from the work of Esper et al. [75], i.e., delivery of customer orders on time, reduction of response time in the supply chain, supply chain integration, communication with supply chain partner, and information sharing with suppliers and customers.

Dependent variable. The organizational performance scale was adapted from Delaney and Huselid [53], and it covered three items asking respondents to compare their company's success against other companies in the same sector. The use of subjective performance assessments could be a potential constraint (e.g., Starbuck [113]). However, the earlier literature (e.g., Delaney and Huselid [53]; Kunze et al. [114]) has shown that measures of perceived performance tend to correlate positively with objective measures and that perceptual data is an adequate option when combined with a rigorous research design (e.g., Howard [115]; Minbaeva et al. [106]).

Control variables. Four variables (firm age, turnover, number of employees, and R&D activity) were used as control variables to eliminate whatever effects they might have had on organizational performance. Company age was measured in terms of the number of years since its establishment. Both the number of employees and turnover (in millions of euros) were used to measure firm size. The number of employees participating in research and development activities reflected how active a firm was in research and development.

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

### 4.4. Analysis

The partial least squares (PLS) method was used for the analyses (version 3.2.7 of SmartPLS; see Ringle et al. [116]), following a process suggested in the literature (e.g., Hair et al. [117,118]). To include multiple relationships between knowledge-based HRM practices, logistics capability, organizational performance, and the control variables simultaneously, structural equation modeling (SEM) using PLS was deemed appropriate for two reasons: First, PLS is based on minimizing the residual variance of the dependent variables. It, therefore, makes more modest demands on measures than other SEM techniques [117,119]. In addition, PLS-based structural modeling can be utilized with smaller sample sizes [118]. Based on the widely adopted "ten-times rule" [120], our sample size is enough to conduct PLS-SEM analyses. The rule means that the minimum count of observations should be ten times the maximum number of paths directing to the particular latent construct in the structural model. In our analyses, this is fulfilled as there are at maximum eight paths, i.e., minimum sample size being 80 while our sample size is 93.

As a first step in the analysis, the internal consistency and discriminant validity of the scales were assessed.

### 4.5. Internal Consistency

Measures of the construct reliability (CR) and convergent validity of the scales are presented in Appendix A. According to the CR test, all the constructs yielded a value above the generally accepted threshold (0.7, as adopted by Bagozzi and Yi [121,122]). To test the convergent validity of the factor loadings, CR and average variance extracted (AVE) were examined. First, the loadings of all the items were high and statistically significant. This means that they were all related to their specific constructs, verifying the posited relationships between the indicators and constructs. Second, the AVE exceeded the cut-off point of 0.50 (e.g., Fornell and Larcker [122]) in most of the constructs. Although the AVE fell just short of this value for logistics capability when all the criteria for convergent validity (i.e., high and significant factor loadings, as well as high CR) were considered, this measure was also applicable.

### 4.6. Discriminant Validity

Discriminant validity indicates the extent to which any one construct differs from the others; when assessing it, the square root of the AVE should be greater than the correlation between two constructs [122]. As shown in Table 2, the constructs in this study fulfilled this condition.

**Table 2.** Discriminant validity for the research model.

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. HRM motivation | 0.90 | | | | |
| 2. HRM recruiting | 0.35 | 0.77 | | | |
| 3. HRM training and development | 0.41 | 0.40 | 0.84 | | |
| 4. Logistics capability | 0.43 | 0.44 | 0.35 | 0.66 | |
| 5. Organizational performance | 0.19 | 0.29 | 0.19 | 0.35 | 0.87 |

Notes: Squared AVE associated with the construct is presented diagonally. The correlations between constructs are presented in the lower left triangle.

In sum, the model assessments provided good evidence for the validity and reliability of the operationalization of the concepts.

## 5. Results

To test the research model, two path models were used to estimate the posited relationships between knowledge-based HRM practices, logistics capability, and organizational performance. Following the procedure used to test the mediation effect with the PLS approach ([118,123]), a full mediation model was first estimated, followed by an examination of a model of partial mediation.

As shown in Table 3, the full-mediation model explained around 23% of the variance in organizational performance, while the partial-mediation model explained around 24% of the variance. Moreover, in both the full and partial mediation models, the $R^2$ for logistics capability was 29%.

In the full mediation model, the path estimates from all knowledge-based HRM practices to logistics capability were statistically significant: motivation (B = 0.285, $p < 0.01$) and recruitment (B = 0.291, $p < 0.01$), as well as training and development (B = 0.116, $p < 0.10$). In addition, the path from logistics capability to organizational performance was statistically significant (B = 0.314, $p < 0.01$).

When testing the partial mediation model and including the direct effect of knowledge-based HRM practices on organizational performance in the equation, the results were the following: First, the paths from all knowledge-based HRM practices to logistics capability were statistically significant: motivation (B = 0.285, $p < 0.01$), recruitment (B = 0.293, $p < 0.01$), and training and development (B = 0.112, $p < 0.10$). Second, the path from logistics capability to organizational performance was similar to that observed in the previous model (B = 0.244, $p < 0.01$). However, the direct paths from knowledge-based HRM practices to organizational performance were not significant.

**Table 3.** Research models.

| Path | Full Mediation | Partial Mediation |
|---|---|---|
| *Control variables* | | |
| Age → Organizational performance | −0.136 | −0.138 |
| Turnover → Organizational performance | 0.212 | 0.213 |
| Employees → Organizational performance | −0.015 | −0.011 |
| R&D share → Organizational performance | 0.144 | 0.118 |
| *Mediating variable* | | |
| Logistics capability → Organizational performance | 0.314 ** | 0.244 ** |
| *Independent variables* | | |
| HRM motivation → Logistic capability | 0.285 ** | 0.285 ** |
| HRM recruiting → Logistic capability | 0.291 ** | 0.293 ** |
| HRM training and development → Logistic capability | 0.116 [a] | 0.112 [a] |
| HRM motivation → Organizational performance | - | −0.007 |
| HRM recruiting → Organizational performance | - | 0.125 |
| HRM training and development → Organizational performance | - | 0.056 |
| $R^2$ for Logistics capability | 0.291 | 0.291 |
| $R^2$ for Organizational performance | 0.226 | 0.244 |

Notes: ** Significance < 0.01; [a] Significance < 0.10.

Thus, based on the above tests, it can be concluded that logistics capability fully mediates the relationship between knowledge-based HRM practices and organizational performance. This supports Mediation Hypotheses 1–3, which posit that the effects of all three knowledge-based HRM practices (motivation, recruitment, and training and development) influence organizational performance through logistics capability. Please see Figure 2 for the results of the full mediation model.
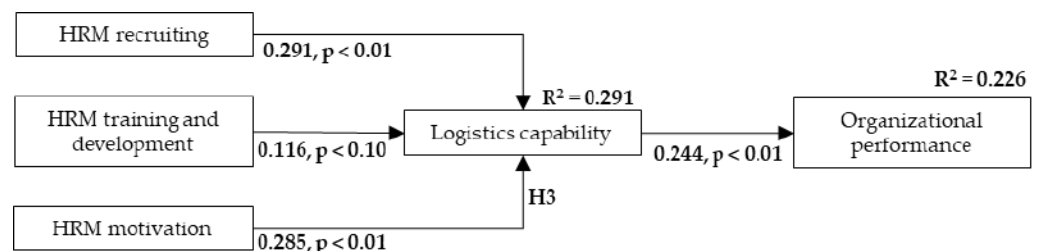


**Figure 2.** The results showing the significant paths. Note: Control variables have been omitted for clarity reasons.

According to the results achieved, knowledge-based HRM practices influence organizational performance only through the logistics capability of an organization. This result highlights the important role of knowledge-based HRM practices as a capability builder in organizations, which supports the arguments presented in the extant literature [40,103]. Knowledge-based HRM practices are primarily concerned with the acquisition, development, and utilization of the human capital possessed by individuals; consequently, it is logical that developments in such an individual-level management approach do not directly translate to organization-level outcomes. In fact, organizational performance is influenced by a multitude of variables, including but in no way limited to HRM. Obviously, this poses a challenge for academics and managers who want to determine the most important but hidden value-creating factors of an organization.

The utilization of the logistics capability measure as a mediator provides academics and managers with more leverage in studying and developing the relationship between HRM and organizational performance: logistics capability is the result of various inputs (just like organizational performance but on a lesser scale), such as employee knowledge, technological capital, business process quality, and so forth. Because this capability is a combination and outcome of several individual factors, it has more influence over organization-level performance than these individual factors alone [124]. Therefore, the

results of this study demonstrate that knowledge-based HRM practices do have a significant impact on the development of industry-specific logistics capability and that logistics capability clearly has a positive relationship with organizational performance.

That said, if this study had been conducted in an industry other than logistics, the results might have been different. It is more likely that the relationship between knowledge-based HRM practices and organizational performance is direct in small knowledge-intensive organizations, whose main output is intangible. For instance, in small consultancy firms, whose economic output is generated by individual consultants (or small teams of them) and whose performance depends on individual-level knowledge and skills, knowledge-based HRM practices can have a significant direct impact on organizational performance.

## 6. Conclusions

The objective of this paper was to demonstrate a relationship between knowledge-based HRM practices and organizational performance via the mediating influence of logistics capability. Based on theoretical argumentation, logistics capability was defined as an industry-specific capability that can be developed by using knowledge-based HRM practices, which focus on managing the knowledge embedded in individuals instead of managing individuals as performing objects. The hypothesized relationships were empirically tested using a dataset collected from 93 small Finnish logistics companies.

This study has implications for both researchers and managers. It demonstrates that using knowledge-based HRM practices improves the business-critical capabilities of small logistics companies and encourages managers to use those practices that better fit the knowledge economy and turbulent business environment. For academics, this study provides evidence derived from the niche KM research area of logistics and small logistics companies and shows that KM yields benefits in these contexts.

### 6.1. Theoretical Contributions

This study contributes to the logistics service industry literature in several ways. First, the results of this research confirm that the recent shift in logistics companies' business model from physical assets toward a more knowledge-based approach increases the relevance of logistics capabilities, as indicated by Karbassi et al. [125] and Langley [5]. This study also demonstrated that small logistics companies attach increasing importance to the development of appropriate logistics capabilities for achieving competitive advantages. On the other hand, this is possible if small logistics companies leverage their employees in an innovative way, one that allows the provision of value to customers and ensures market success [126]. Innovative and dynamic employee development and hiring strategies play a critical role in most logistics companies because they must develop training programs, identify opportunities for high-potential workers, and create structured paths for career advancement. This is in line with the research works of Curado and Teixeira [127] and Rao et al. [98].

The results achieved are confirmed by some most recent research. In fact, Deng and Noorliza [128] highlighted that logistics providers, to remain competitive in the current unpredictable and unstable environment, need resilience and innovation capability. The authors demonstrated that external integration has a positive relationship with logistics resilience and innovation capability, which have, in turn, had a positive impact on logistics companies' operational performance. Patrucco et al. [129] arrived at a similar conclusion as the results of their study reinforce the value of investing in skilled human talent, who can contribute to knowledge acquisition, utilization, and improve supply chain performance.

This study also highlights the essential role of human resources and their management in improving the organizational performance of small logistics companies [130]. Specifically, the empirical evidence shows that knowledge-based HRM affects employee availability, skills, and motivation and thus, improves the logistics capability of small logistics companies, which, in turn, has a positive impact on organizational performance. These results are in line with the evidence provided by Tracey et al. [131]. From this point of view, this

study contributes to the literature in the field, which has traditionally underestimated the role of human resources and their idiosyncratic knowledge and motivation in enhancing performance in logistics service companies (e.g., Sweeney [132]; Ralston et al. [61]).

This study argues that the adoption of a knowledge-based approach in managing human resources seems to be a very beneficial strategy for logistics service providers and requires the development and deployment of a specific approach to HRM in small logistics companies [133]. Using evidence from the Finnish logistics service market, this study adds to the existing literature on logistics capabilities by providing a strategic linkage to the field of knowledge-based human resource management [94,134].

Furthermore, this study demonstrates that logistics capability is a crucial mediating construct in the linkage between knowledge-based HRM practices and the organizational performance of logistics service providers. This differentiates the present study from previous research in this field [135,136]. The findings of the study provide further empirical validation for the importance of firm-level conditions in the effective exploitation of the resources and capabilities needed to achieve a competitive advantage through knowledge-based HRM practices. While this paper investigated small logistics companies, we argue that its implications may be extended more widely to demonstrate that KM impacts organizational performance by improving industry-specific capabilities. Previous studies (e.g., Zack et al. [137]) have demonstrated a similar effect but tend to have used generic intermediate variables, while this paper demonstrated the value of addressing industry-specific aspects.

This research bridges a gap in the extant KM research, which has focused predominantly on medium-sized and large organizations and has almost completely overlooked the logistics industry [8]. The empirical results of this study help in narrowing the knowledge gap regarding KM practices and organizational performance in small logistics companies. The first theoretical implication is that knowledge-based HRM practices seem to produce positive performance outcomes for small firms, which have been previously understudied. This promising result clears the path for further, similar studies among, e.g., different industries in different countries. The second implication is that the KM approach is a viable option in terms of managing change and improving the performance of logistics companies. Some earlier research has provided similar conclusions (e.g., Oeij et al. [138]; Fugate et al. [50]; Sweeney et al. [96]), yet this study specifically highlights knowledge-based HRM practices as particularly promising for company management. One potential direction for future research endeavors that could further bridge the fields of KM and logistics may be to study the relationships between other KM practices, such as supervisory work and the strategic management of knowledge and knowledge protection, and organizational performance [139].

### 6.2. Practical Implications

The findings provide valuable insights for human resource managers operating in small logistics companies. First, they indicate that it is important to realize the value of employee knowledge and abilities in building firm-level abilities to manage the operations of a company and ultimately reach high levels of performance. This seems in line with the study of Ta'Amnha et al. [140], that argued that HRM practices have important implications that can enable managers to benefit from the enhancement of firm performance.

While HRM may not be an intuitively important aspect in the management of small companies, this study has demonstrated that it accounts for a significant proportion of company performance. Adopting a consciously knowledge-based approach to managing human resources seems to be very beneficial. In practice, this means that during recruitment, one should pay attention not only to the task-related skills of potential new employees but also to their abilities to network and collaborate and to possess a development-friendly mindset. Secondly, tailored and continuous training and development opportunities should be offered. Third, knowledge sharing, knowledge creation, and application should be encouraged.

### 6.3. Limitations and Future Research

This study presents some limitations. The most obvious limitation is the context of the study. The results of this study are valuable for small logistics companies, but they may be less relevant for large companies operating in logistics or even other industries. Another context-based limitation is that the data were collected solely from Finnish companies. Finland represents a highly developed and digitalized post-industrial economy with a large gross domestic product per capita. This might limit the generalizability of the findings. As the sample of examined companies in this study was limited to 93, future research could consider a larger sample of firms. Moreover, data for this study were collected from only one respondent per company, each of whom gave a subjective assessment of knowledge-based HRM practices, logistics capability, and organizational performance. Future studies could collect data from several respondents per company, i.e., economic information from the finance unit, HRM information from HR professionals, and capability-related information from individuals who possess relevant substantive knowledge. Moreover, future studies could combine subjective assessments of economic performance with objective financial information. Finally, the quantitative survey developed in this study could be complemented with qualitative analysis (e.g., case study analysis) to provide more in-depth answers to how and why knowledge-based HRM practices influence organizational performance in small logistics providers.

**Data Availability Statement:** The data collected through the questionnaire survey is covered by a confidential agreement. Thus, the data is not publicly available.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

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

| Concept | Item | Factor Loading | CR | AVE |
|---|---|---|---|---|
| HRM recruiting | To what extent do the following statements on general management apply to your company (1 = completely disagree, 7 = completely agree) | | 0.79 | 0.59 |
| | When recruiting, we pay special attention to relevant expertise. | 0.351 *** | | |
| | When recruiting, we pay special attention to learning and development ability. | 0.913 *** | | |
| | When recruiting, we evaluate the candidates' ability to collaborate and work in various networks. | 0.900 *** | | |
| HRM training and development | We offer our employees opportunities to deepen and expand their know-how. | 0.888 *** | | 0.70 |
| | We offer training that provides employees with up-to-date knowledge. | 0.771 *** | 0.90 | |
| | Our employees have an opportunity to develop their competence through training tailored to their specific needs. | 0.910 *** | | |
| | We regularly discuss with employees about their development needs. | 0.764 *** | | |

**Table A1.** *Cont.*

| Concept | Item | Factor Loading | CR | AVE |
|---|---|---|---|---|
| HRM motivation | Our company encourages employees to share knowledge. | 0.880 *** | | 0.81 |
| | Our company encourages employees to create new knowledge (new ideas and practices, etc.). | 0.893 *** | 0.93 | |
| | Our company encourages employees to apply knowledge. | 0.926 *** | | |
| Logistics capability | To what extent do you agree with the following items regarding your firm's logistic capability (1 = not at all; 7 = very much) | | | 0.43 |
| | We share knowledge and information with suppliers and customers | 0.590 *** | 0.79 | |
| | We seek new ways to unify activities across the supply chain. | 0.732 *** | | |
| | We deliver customers' orders on time. | 0.560 *** | | |
| | We always aim to reduce response time across the supply chain. | 0.651 *** | | |
| | We discuss future customer needs among other parties in the supply chain | 0.743 *** | | |
| Market performance | Compared to the companies in 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)? | | 0.90 | 0.76 |
| | Growth in turnover | 0.854 *** | | |
| | Profitability | 0.884 *** | | |
| | Market share | 0.873 *** | | |

*** Statistically significant at 0.01 significance level.

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