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How New HRM Practices, Organizational Innovation, and Innovative Climate Affect the Innovation Performance in the IT Industry: A Moderated-Mediation Analysis

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Abstract: Considering the cutthroat competition in IT organizations, public and state-based organizations are trying to develop strategies to promote innovation in the organizations. However, due to monopolistic structure, employee rigidity, and lack of innovation climate, employees are reluctant to perform innovatively in such organizations. New HRM practices (NHRM) can enrich the talented, motivated, committed, and innovative staff to enhance innovation. However, empirical evidence to prove this relationship is insufficient. Therefore, this study aims to analyze the effect of NHRM practices on innovation performance with the mediating role of organizational innovation and the moderating role of the innovation climate. Data collected from semi-government IT-based organizations provide results that there is a significant positive relationship between NHRM practices and innovation performance. The mediating role of organizational innovation was also found. Moreover, the results of the moderated-mediation show that the mediating role of organizational innovation is also strong if the organizational climate is more innovative. These results provide managerial guidelines to promote NHRM practices to enhance innovation performance in the semi-government IT-based organizations of Pakistan.

Keywords: new HRM practices; organizational innovation; innovative climate; innovation performance; semi-government organizations

1. Introduction

Considering the globalized rivalry situation, public and state government organizations have not realized pressure to innovate due to having monopolistic power of providing services [1]. Employees are also reluctant to perform innovatively due to poor reward and incentive systems. However, in the past decade, the need for innovation has been raised in state-owned organizations around the world. Organizations have been confronted to perform efficiently and effectively just like private organizations. In this scenario, governments are also trying to develop strategies to promote innovation within organizations through hiring skilled staff, improving operating systems, or selling tradition infrastructure and properties [2]. Innovation has become a hot topic in public and governmental organizations. Since it is evident that the traditional methods to operate the organization are less effective in the motivation and development of employees' creativity, which contributes in the modern

era by facing rapid changes and uncertainty, those organizations need to transform their methods and techniques to perform innovatively [3].

Organizations are reshaping their ways of doing business, making it more creative, motivational, competitive, and unbeatable due to the growth of global change. These rapid growths in technologies are also dramatically changing the organizational climate in some countries, such as Pakistan. This country is facing instability, complexity, and unpredictability in its business scenario. Indeed, the competitive climate is needed to reorganize strategies, innovation, flexibilities, and climate uncertainties [4]. The Global Innovation Index (GII) reported that in innovative orientation and output, Pakistan stands at position 119 of 128 countries [5]. Thus, researchers pointed out that organizations in Pakistan are struggling to cope with their innovation and advancement [6], and the basic reasons behind deprived organization innovation is the lack of new technology, lack of knowledge, and competitive skills [7].

A semi-government organization is defined as an institution by the meaning of both public and private perspectives that combines the elements of government bureaucracy as well as a private company. The government owned more than 50% of an organization in most of the cases. Government directly has the power to handle its operations and appoints a permanent or semi-permanent commission who utilize the machinery of government and are responsible for the administration issues and oversight of specific functions in the organization [8,9]. Although, the demand for innovation was increased in the public sector organizations, some of the semi-government sector organizations' employees experimented with innovative ideas. Mostly government sector organizations have their hierarchical structure reliance on strict rules that are not supported to address new trends and challenges [10].

Moreover, these organizations tend to implement past practices rather than experience new ideas due to risk aversion [11]. It has enlightened that the demand for innovation in government organizations has increased and the government bodies are no longer allowed to remain unchanged. The Pakistani government is stepping forward to rebuild their organizations by organizing several creative programs and promoting their semi-government organizational innovative proficiencies, skills, technologies, and capabilities [7,12].

Human resource management practices are the most important source to consider for the organization, and they have significant effects in achieving the realization of any organization. Organizations enriched with motivated, innovative, and committed employees can achieve any competitive goals and challenges. In the modern century, the success of managers entirely depends on the effective managing of human resources [13]. Additionally, researchers have increased their emphasis on both organizational strategies and strategic positioning, which have affected the selection of a set of HRM practices. The era of cutthroat competition indicated that effective human resource management (HRM) is no longer content and is executed with a conventional set of practices [14,15] as different researchers indicated the lack of evolutionary research on HRM practices, such as the development of an evolutionary HRM practices-based framework [16], economic evolutionary perspective [17], and lack of integration of national and international HRM standards [18]. Hence, to remain competitive globally, it is important to establish new human resource practices (NHRM). There are prevailing universal assumptions that maintain that some activities of HRM practices are better than others. Therefore, organizations must adopt the new and innovative practices of HRM. Organizations have to develop and create such HR practices that are flexible and innovative which can adopt the possible changes of the organizational climate [15,19]. Pakistan's economy is also reforming day by day, and their organizations are transforming from conventional administration to new HRM practices [20,21]. Therefore, the new HRM scenario must be established and implemented to cope with new global competition and challenges. NHRM practices are shifting entire scenarios, such as E-recruitment and selection, training and development, reward systems, and teamwork and employee involvement in decision-making which are linked strongly with organization performance and HR outcomes [22]. Moreover, particular HRM practices are more valuable and significant in terms of

relevance, but, on the other hand, HRM theorists have emphasized the bundles of HRM practices that focus on the same goals [23]. Effective HRM practices can increase and can contribute to enhancing the innovation performance by innovation, quality, and HR performance [24].

However, there is very little research addressing the link between NHRM and organizational innovation. The literature claims that organizations need to cope the innovation activities by making better utilization of NHRM practices that can enhance the employees' involvement towards new knowledge and novelty [25–27]. Moreover, earlier research discussed that organizational innovation could perform as a facilitator to improve the innovative climate [28]. Organizational outcomes can be optimized to change in organization systems, which required these changes to be operational and administrative. However, the link-related innovation in the semi-government organization has hardly been examined and discussed [29,30]. Recently, scholars have been very passionate to know the effect of the innovative climate in semi-government organizations. Since the innovative climate encourages creative work approaches, influences risk-taking performance, provides new technologies, and creates a challenging work climate at organization [31], the adoption of a technological process that can build the base for taking challenging decisions is very important. Thus, it is better to study the adoption of technological information seriously [19,32] because it provides information related to the strength of the conceptualization of a theoretical framework and the interaction of specific factors [31]. While the rational frameworks promote change resistance, environmental factors affect the decision in the selection of technology and the level of satisfaction maximization [33,34]; the predictability of process rather than the creativity of people and flexibility has been emphasized by modern theorists [19]. To justify the relationships between NHRM, innovation performance (IP), and organizational innovation (OI) in the semi-government organization, in previous studies, scholars used diverse theories such as human capital theory [35], the knowledge-based view [36], and the resource-based view (RBV) [37,38].

Furthermore, researchers claimed that technology-organizational-environment (TOE) theory largely applied in innovation performance supports on overall organization's competence, proficiency, working efficiencies, and practices [34,39]. TOE theory is also useful for NHRM practices and it provides sustainable competitive benefits [36,40]. NHRM can be distinctive, precious, unique, and unremarkable due to achieving sustainable implementation of TOE theory in an organization [40], such as semi-government organizations attaining competitive advantage. Hence, this study is applying technology-organization-environment theory to empirically test the framework that links organizational innovation and innovation performance [41]. Moreover, it examines the relationship between NHRM and directly and indirectly creates effects of organizational innovation on innovation performance.

While it has well established the link that NHRM has significantly affected innovation performance, especially in the context of semi-government organizations, this positive influence raised a question to determine how NHRM has positive effects in the context of semi-government organizations [42]. Organizations should require constructing a supportive climate for members that sustains encouraging behavior and reshapes the organizational climate for further inquiry. An organizational climate can be reformed by supportive innovative behavior that is labeled as the innovative climate. NHRM practices can be effective in motivating those climates in semi-government organizations and can construct a significant work climate. However, little of the literature has discussed such topics, particularly in the semi-government organizational scenario. Researchers emphasized that future studies are required for the exploration of more interactive paths between NHRM practices and innovative climate [27,43]. Moreover, organizational innovation and NHRM have also been discussed very little [44,45]. Thus, it is considered a burning issue, and has entitled the research gap that needs to be addressed. Hence, the present investigation empirically explored the role of organization innovation as a mediator among NHRM and innovation performance and innovative climate moderation among NHRM and organization innovation in Pakistani semi-government organizations.

2. Literature Review and Hypotheses Development

2.1. New HRM Practices

The attention of scholars who belonged to a diversity of disciplines and fields has increased due to the on-going re-shaping design of management and organization practices to manage the complexity and rapid changing of the knowledge-based economy [13,43]. Such rapid change also stress re-structuring human resource management (HRM) practices as a form of employment relations and encouraged the rising of a new dynamic work environment [15]. These new HRM (NHRM) practices are applied in various kinds of organizational practices, such as team or team-based organizations, their constant knowledge, transformation in composition, rewards, performance, appraisal system, recruitment process, and quality improvement [25,30]. While many NHRM practices may not be entirely novel, some of these new practices have broad generalization which has tended to appear rather recently. Researchers have emphasized that both types of strategies, the organization strategy, and strategy orientation should affect the choice of the set of HRM practices [46]. Some have emphasized that organizations must developed such human resource practices which have flexibility and inventiveness in order to adopt the complexity and rapid changes of the environment [22,23]. Therefore, every organization of developed and developing countries have great concern related to their productivity. HRM practices can contribute directly to achieve the objective by finding effective and better ways towards productivity [47]. Thus, the new HR strategies are helping to create the innovative setup in which NHRM practices are significantly recognized by the employees and management [48]. Such NHRM practices' adoption would help the organizations to take on rights devolution, empowerment, teamwork, and democracy in decision-making [43]. Previous literature has advocated that HRM be deemed as an essential part of production and growth [44]. Moreover, Kazlauskaitė and Bučiūnienė [49] argued that the concept of HRM is concerned with organizational productive rules, processes, and procedures which include HR planning, job analysis, recruitment and selection, orientation, compensation, performance appraisal, training and development, and labor relations.

Each organization is using HR practices in its management department widely. Thus, the process of HRM practices are very common globally, but some countries' organizations have re-built their HR department with innovating HR practices, and Pakistan is one of them. Over the past decades, Pakistan has re-constructed its economy and has simultaneously transformed the conventional management system into NHRM [23,24] and these NHRM practices include E-recruitment and selection methods, training and development processes, reward systems, and teamwork and employee involvement in the decision-making process, which directly have links with HR input and outputs that lead towards organizational success [24]. Thus, advancement in new HRM (NHRM) has connoted concern with organizational productivity.

2.2. Organizational Innovation

The term organizational innovation or innovation in organization is defined in the Oslo Manual as a new idea implementation for product improvement, and a new organizational process or method applies in organizations, groups, workplaces, and operations [26]. These innovations technically and non-technically indicate the continuation of different kinds of organizational innovation [27]. Moreover, organizational innovation is mainly related to four activities, including new product development, new production process, creative strategy, and economic organization, by considering all economic actors [50]. Organizational innovation is considered a multi-tasked process containing newly emerged digital techniques, advanced processes, practical implementations, more complex structure, more advanced technological strategies, and creative product production [27,51]. However, previous literature more frequent discussed a conventional manner of organizational innovation [52].

Advancement in organizations influences the implementation of the business process, responsibilities of employees are more specified, internal and external decision making processes are

also identified [53], and interpersonal relationships with other organizations are more defined. On the other hand, according to the different studies' results regarding innovational organizations [54], if the organization is not willing to adopt innovation in its business [28], its internal and external descriptive power would be less than the innovative organization and it has less chance of organizational success. Thus, in this cutthroat organizational competition, each organization should develop a dynamic organizational scenario in which it will be cope within the market competition. Furthermore, organizations are trying to adopt practical implementations to maintain their market performance. They are also learning from their past performances, skills, and experiences, and are trying to adopt new innovational environments. This innovational development requires continuity in the progressive work environment, expansion in employees' knowledge, skills, implementation of new technological equipment, innovative ideas thinking, and innovative solutions [55,56].

2.3. Innovative Climate

A supportive organizational climate has been considered as a significant aspect of organizational policies as it leads employees to utilize their potential in a free manner. The innovative climate has been divided into two categories: (1) the internal innovative climate, and (2) the external innovative climate. However, the internal innovative climate is more important in organizational strategy as it promotes a free-style thinking in employees. Earlier studies found that a supportive organizational climate embrace new concepts triggered by employees. Organizations set a work environment for employees to encourage the perception of accepting challenges, provide the adequate technologies to compete for the risk factor, and assign challenging work for the utilization of innovative working approach [57]. Such a creative working environment is called an innovative climate. The term innovative climate opens up a new plan for thinking behavior, mental cognition, and perception. This innovative approach can be helpful for institutes to boost their organizational progress. Employees have an essential part in the modern environment because their creative perception builds up an innovative climate [57]. Moreover, innovative climate positively involves with organizations [58] and expressed employees' challenging work behavior with the distribution of work [59].

Furthermore, Khan, et al. [60] explained that organization supports employees to provide a safe, calm, impulsive, and motivational innovative climate but, in previous findings, researchers argued that employees' innovative behavior has significantly built the innovative climate in an organization [61] and their innovative ideas generate active contributions in the innovative climate process, whereas the organization also takes part to provide an innovative climate. Masterson et al. [62] argued that organizations develop opportunities for employees to polish their skill by challenging risk-taking work and satisfy them by providing innovative skills which are the basic demand of the competitive climate. The innovative climate should be represented by liveness, adaptation, and adjustment and flexibility [60]. The organization should develop a supportive innovative climate which supports employees to provide organizational innovation [57]. Thus, such organizational supportive behavior (time, resources, and innovative climate) encourage employees to perform stunning work [63].

2.4. Innovation Performance

The adoption of the idea of "innovation" is relatively new in semi-government organizations [64]. Researchers implemented innovation as a new thought of development, procedure, and process. The concept of innovation considers either an adoption process or the process of new practices and information. Studies described that innovation adoption leads to the creation of new idea competency and organizations can apply these ideas to their latest products, HR processes, and re-structuring their procedures and customers' services [65]. The innovation is defined as a process that can develop various methods of organizations, re-structured new products, creative ways of production, technological methods and techniques, customers' fresh services, and adoption of new structures and information resources [66,67]. Information resources can vary between the different terms of innovation because innovation considers not only what is fundamentally revolutionary [68], but also incremental,

that is a slight expansion in existing products, HR processes, re-structured procedures, and customers' services. Incremental innovations essentially define the augmentation of existing products' services, technologies, and HRM practices. Organization by avoiding the bad habits and external sources which affect the performance can be improved and enhance innovation performance by identifying and introducing new knowledge. Furthermore, innovation is connoted as a multi-talented practice of organizations that are proven, as well as profitable market shares and performances [68].

Scholars encouraged the innovation with industrial competency because, according to them, industrial competency encourages innovation performance and both of them have discerned relationships. Semi-government organizations have competitive edges derived from industrialists and innovational change in technologies [69]. Organizations with calculated risks have developed industrial competencies as a special process of new product development, technologies, new management practices, and providers of efficient services. The present work describes innovation performance as a process of improvement in HR practices, processes, and procedures and it provides an aid to enhance the legacy of performance, implication, and worth of the administration, services, and operational processes [70]. Moreover, innovation performance is taken as an important indicator of organizational effectiveness in semi-government organizations more specifically in IT firms, as IT firms need to be involved in the continuous process of innovating new products, ideas, services, and processes. In Pakistan, the semi-government sector is progressing at a slow pace and the IT industry is not contributing enormously. Therefore, it is necessary to conduct scientific research to determine the factors affecting innovation performance.

2.5. NHRM Practices, Organizational Innovation, and Innovation Performance

According to the strategic human resource management's (SHRM) point of views, NHRM practices are considered a vital part in employees' success, development, skills, behavior, and competence to accomplish OI [27,36,71]. Researchers further believe that NHRM practices highlight the role of e-recruitment and selection, new compensation methods, developmental training, and innovation performance which tend to define employees' innovation in the organization [72,73]. Employees that innovate behavior in the context of NHRM practices generate organizational innovation motivation which is helpful for innovation performance [27,36,74]. Employees' implementation of innovational ideas can also boost the confidence in employees and may lead to absolute organizational innovation. Hence, NHRM practices' general perspective of HRM that can improve the performance of organization through use the bundle of HRM practices include a high level of commitment [59,75], involvement of employees [76], and innovation processes in organizations [56] which may encourage NHRM practices in small-, medium-, or large-sized organizations [77,78]. Notably, HRM practices can be useful to achieve a high intensity of performance [15], and previous studies highlighted the positive significance of performance with HRM practices [79,80]. However, the current work is checking the role of NHRM practices influencing innovation performance. By motivating employees, HRM has an effective impact on innovation performance [81]. Researchers further provided evidence of HRM's impact through employees' performance in organizations and discussed the motivational drive of employees which enhance the employees' abilities and performance level [64,79]. Likewise, NHRM practices can increase the motivational level of employees and enhance innovation performance through the advocacy of reinforcement in practices. If organizations may provide NHRM practices than their performance level must be superior. Thus, the previous findings have the concept of NHRM, but they have no further implementation in their studies [25,30].

Organizational innovation is defined as a new idea or term, exploring the new creative idea, process, and techniques which may increase the improvement of the innovation performance. It was important to identify the value of new and external information by increasing the knowledge of semi-government employees about the term organizational innovation. By contributing achievement of competitive advantages, organizational innovation dares to promote innovation performance [82] and adopt innovation in the workplace that triggers positive stimulus while concurrently decreasing

costs and improving productivity [83]. Moreover, organizational innovation gives preferences to the customers' needs and achieves positive outcomes [68]. In organizational innovation, new products furnish new initiatives that reflect innovation performance [68], motivate employees to show their new skills, seek new initiatives, and achieve high rewards. Thus, it is a continuing entrepreneurial advantage that authorizes the enterprising organization to obtain benefits by using a short monopoly. New technologies in organizational innovation are also an essential part of organizational achievement globally. Thus, forgetting innovation performance, organizational innovations are necessary to build new technological resources, absorptive competency, and creative products.

Hypothesis 1 (H1). *NHRM practices have positive association with innovation performance.*

2.6. Mediating Role of Organizational Innovation

To present supportive theoretical literature of the mediator, this study refers to prior literature signifying an indirect relationship between the mediating role of organizational innovation used between the relationships of NHRM practices and innovation performance. However, previous literature has more often concerned the impact of innovation in export performance and internationalization. Very few studies showed the role of innovation as a mediator [84,85]. The product innovation performance created mediating role between organizational learning capability and export intensity. Camisón and Villar-López [85] identified that to introduce organizational innovations, manufacturing flexibility influenced innovation performance as a mediator with organizational ability. Moreover, Sanz-Valle and Jiménez-Jiménez [86] presented relations among innovation, firm performance, and organizational drivers. However, the results of earlier studies conducted in public and private firms considering the organizational innovation as a mediator cannot be applied to the semi-government organizations, especially in IT firms. Innovation is one of the important technological instruments which must be integrated in IT firms where organizational sustainability depends on continuous innovation. Therefore, In the light of previous literature, our work proposes that organizational innovation is working as a mediating effect between NHRM practices and innovation performance. Therefore, the following hypotheses are stated:

Hypothesis 2 (H2). *The relationship between NHRM practices and innovation performance is mediated by organizational innovation.*

2.7. Innovative Climate as a Moderator

Earlier literature discussed that scholars should pay attention to the boundary conditions connected with NHRM practices [87,88] and specifically considered towards semi-government organizations [89]. To address the moderating effects, the innovative climate was introduced between NHRM practices and organizational innovation. As a vibrant process in an organization, the innovative climate works in a creative environment where employees' energetic work behaviors suit the work condition [89]. Previously, organizational climate as a potential moderator received the attention of researchers [90,91]. After that researcher consideration has shifted into global organizational climate effects. However, some scholars have been concerned with a particular climate, mainly "innovation" [40,91]. The innovative climate exists in the organization and can facilitate the NHRM practices on organizational innovation. The innovative climate reflects rules and regulations that support creative ideas, a new expression of learning, and adopts a change in organizational context [92,93]. The innovative climate also empowers employees to think by themselves, regenerate new working terminologies, and reshape their cognitive, motivational, emotional, and intellectual resources through creative manners, and contribute to innovation performance. NHRM encourages employees to perform their best work, and the innovative climate provides resources in which NHRM practices and organizational innovation can work innovatively [63].

The following hypothesis formulates from the above discussion:

Hypothesis 3 (H3). *Innovative climate positively moderated between NHRM practices and organizational innovation.*

According to Hypothesis 2 and Hypothesis 3 an intermediary model is further exposed to define the moderating role of the innovative climate. This investigation explains that when the innovative climate is higher NHRM practices create a strong influence on organizational innovation that can particularly enhance the innovation performance. Hence, the effect of NHRM practices on innovation performance by organizational innovation will be less accomplished. The above discussions lead to formulating a hypothesis:

Hypothesis 4 (H4). *Innovative climate moderates the strength of the mediation effect between NHRM practices and innovation performance via organizational innovation (such that the mediation effect will be stronger under a high innovative climate than under a low innovative climate).*

From the theoretical examination of the above literature, this investigation proposed the model of a moderated mediation to further explain in detail that the innovation performance is supported by NHRM practices in the Pakistani semi-government organization context. This model has been developed in the light of earlier HRM studies [94] where the role of innovation climate is proposed as a moderator that adjust the first path of organizational innovation, the structural model presents that the mediating impact of organizational innovation between the NHRM practices and innovation performance is regulated by an innovative climate. The model of study is shown as in Figure 1.

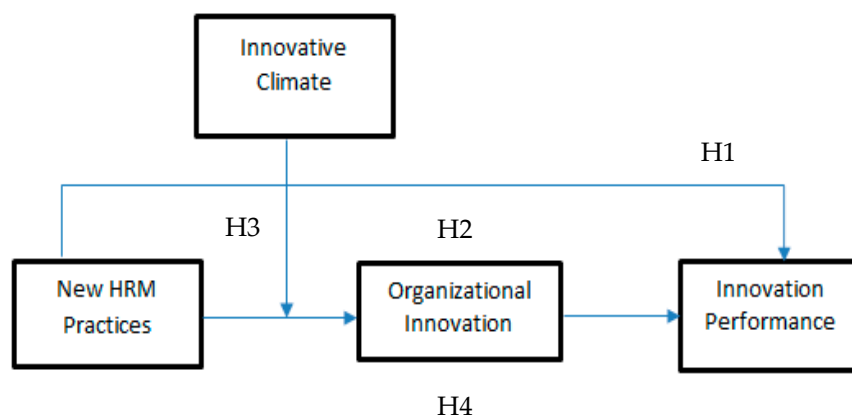


Figure 1. Model of the study.

3. Methods

3.1. Population, Sample, and Data Collection Procedure

This study aims to check the impact of NHRM practices on innovation performance in the IT industry in Pakistan. To represent the population of the IT industry, data were collected from the semi-government IT-based organizations, including the Pakistan Software Export Board (PSEB), the Pakistan Computer Bureau (PCB), the National Information Technology Board (NITB), and the National Database Registration Authority (NADRA) in twin cities Lahore and Gujranwala during a one-year period from Dec. 2016 to Dec. 2017. To facilitate the data collection from the sample of the five largest semi-government IT companies, two non-probability sampling techniques—the convenient sampling technique and the snowball sampling technique—were practiced as suggested by earlier studies [9,34,95,96]. This study measured four constructs to test the hypothesis of the present study: new human resource management practices, organizational innovation, innovative climate, and innovation performance. Collecting the measures of the dependent, mediator, moderator,

and independent variables from different data sources have limited the problems associated with common method variance.

The validity of the questionnaire was ensured through informal interviews taken from the top or middle-level managers of HR departments before the questionnaire was distributed in the organizations. During the informal interview, a request was made to officials to point out the ambiguous, imprecise, unaware terms and assimilated their responses to improve the questionnaire's readability and relevance. Based on these suggestions, the questionnaire was improved, and after obtaining approval from headquarters, questionnaires were distributed to all targeted organizations' employees through an official e-mail. PSEB, PCB, NITB, and NADRA are semi-government IT-based organizations which are working under the Ministry of Interior, Government of Pakistan. They provide the cornerstone of IT development nationwide. Due to security and confidential issues, this study could not obtain permission to utilize a local server network of targeted semi-government organizations to collect our survey responses—a structured questionnaire developed on Google forms and a survey link was distributed between employees through an official e-mail sent by the HR department. Online data collection is recommended due to its faster speed and is error-free as well as convenient for both the respondent and researcher. However, employees are enabled to respond to the questionnaire during duty hour because of the nature of their job. Therefore, after mutual understanding among authors, one of the co-authors participated in the data collection by visiting different offices and registration centers. Moreover, respective HR departments of selected organizations provided support for administering communications with respondents through official contact and e-mail as well. The questionnaires were distributed for more than six months amongst the 1100 employees from which 632 completely valid responses were collected against the distributed questionnaire. While conducting interviews of deputy HR directors, a request was made to identify the senior HR executives and core knowledge employees from their research and development (R and D) department. Moreover, the core knowledge employees' roles were defined as the most critical in terms of introducing new knowledge and creating innovation in the organization [97]. Scholars primarily focus on core knowledge employees during the examination of employee innovativeness because these are the most important employees for innovation processes in the organization and, thus, play an important role for study [98,99]. There were two parts to the questionnaires. One part included demographic questions (gender, marital status, age group, semi-government organizations, education, managerial level, and tenure in current organization) and the second part contained questions of key variables of NHRM practices, organizational innovation, innovative climate, and innovation performance of the study. A further complete description of demographic information is shown in Table 1.

3.2. Measures

Measures of main constructs were taken from the previously existing and well-validated scales. Since the target respondents were well-educated and had good command and understanding of English, the questionnaire was in English, but one of the authors who participated in the survey translated the questionnaire from English to Urdu to facilitate some employees' understanding of the measures. Furthermore, six senior HR executives, five core knowledge employees, and five supervisors were invited to inspect the content validity and generalizability of the survey. Based on this feedback, further refinements and improvements were made. For example, following their feedback the demographic table corrected the 'Tenure in Current Organization.'

3.2.1. New HRM Practices

New HRM practices were measured as an independent variable by 16 items (five-point Likert scale from 1 = strongly disagree and 5 = strongly agree) interrelated to E-recruitment and selection, reward system, training and development, teamwork, and employee involvement. Items were adapted from the previous research [72,73] and developed from the interview of senior HR executives and core knowledge employees of the organization. The reliability of 16 items ranged from 0.64 to 0.85.

The employees of the organization were asked to indicate the extent to which new HRM practices are important. Higher scores of each respective practice indicate their significance, and vice versa.

Table 1. Demographics description of respondents.

Demographics	No. of Respondent	Percent (%)
Gender		
Male	370	58.5%
Female	242	38.2%
Other	20	3.16%
Marital Status		
Married	378	60%
Single	254	40%
Age Group		
20–30	238	38%
31–40	155	24%
41–50	112	18%
51–60	69	11%
Over 60 years	58	9%
Semi-Government Organizations		
NITB	147	23.3%
NADRA	230	36.4%
PCB	145	23%
PSEB	110	17%
Education		
Intermediate	90	14%
Bachelor	311	49.2%
Post Graduate	188	30%
MPHIL	38	6%
PhD	5	0.8%
Managerial Level		
Top level	107	17%
Middle Level	208	33%
Low level	317	50%
Tenure in Current Organization		
Less than 1 year	55	9%
1–3 years	122	19%
4–7 years	177	28%
8–10years	192	30%
11–15 Years	86	14%

PSEB = Pakistan Software Export Board, PCB = Pakistan Computer Bureau, NITB = National information technology board, and NADRA = National Database Registration Authority.

3.2.2. Organizational Innovation

Organizational innovation was measured as the mediating variable; a six-item scale was adopted from Thomas Hurt and Ward Teigen [83] and Hollenstein [100], which aims to measure organizational willingness to try new ideas, trends, and promote the innovation activity in the organization. Each adopted item of the scale asked respondents to indicate (from 1 = strongly disagree and 5 = strongly agree) each statement. The minimum reliability of one item of organizational innovation was 0.60 and the maximum was 0.82.

3.2.3. Innovative Climate

Oke, Prajogo, and Jayaram's [89] four-items scale was operationalized which aims to measure the extent of using the key practices that support a suitable culture in the organization for new ideas, knowledge sharing, and creativity. The respondents were asked to assess (from 1 = strongly disagree and 5 = strongly agree) each statement. The minimum reliability of one item of innovative climate was 0.65 and the maximum was 0.76.

3.2.4. Innovation Performance

Innovation performance as the dependent variable includes a number of performance outcomes which were measured. A seven-item scale was used to measure the innovation performance as developed by Delery and Doty [15] and Dekoulou and Trivellas [81]. These factors were titled 'subjective performance', which indicates the evaluation of the organization subjectively; the ability to retain and attract employees; the general relationship between employees and management; and motivation for creativity and innovative ideas. Each adopted scale item assessed the point to which organization performance is innovative (from 1 = strongly disagree and 5 = strongly agree) with each statement. The minimum reliability of one item of innovation performance was 0.76 and the maximum was 0.84.

4. Analysis and Results

All the key variables, such as NHRM practices, innovative climate, organizational innovation, and innovation performance of this research were analyzed by the statistical software of IBM Statistical Package of Social Science (SPSS) version 21.0. Hierarchical regression analysis was used to obtain results. The mean-centers of all the pertinent antecedent variables were removed as a preconditioning requirement, then the interaction terms were created by multiplying them together [101].

Cronbach's alpha was used in this study to test the reliability of the questionnaire; the greater value of Cronbach's alpha means the higher the reliability of the tested factor which signifies the internal consistency of the questionnaire. Cronbach's alpha value was higher than 0.8, which indicates the internal consistency was favorable. The factor loading technique was utilized to assess convergent validity. The convergent validity was shown to be significant because the composite reliability (CR) and value of average variance extracted (AVE) were more than 0.5. The ratios of 0.6 and 0.5 are based on better convergent validity. Discriminant validity of the variables was examined through the confirmatory factor analyses (CFA). The software IBM AMOS 20 was used for CFA and construct validity. The findings of model fitness indicated the model fit the data reasonably well, as explained in Table 2.

Moreover, model fitness indices examined the comparison between several measurement models (SMM). Compared with other models, the four-factor measurement models are even more superior and it shows the high discriminate validity in Table 3.

CFA was conducted to test the common bias method. All the variables of the model that were linked by a single factor were tested, but the model has not fitted the data, although a common bias method was checked by Harman's single-factor test [102,103]. Results show that the four common factors, whose trait values were higher than 1, account for 69.50% of the total variance [63,104]. Moreover, the common bias method investigation shows the maximum variance of a variable as 14.07%. The means, standard deviations and correlation of all four variables are described in Table 4.

Table 2. Factor loading, reliability, and validity of variables.

Variables	Items		Loading
New HRM Practices (NHRM)	(a = 0.95, CR = 0.97, AVE = 0.81)		
	NHRM1	Necessary actions have taken by the HR department to avoid layoffs.	0.77
	NHRM2	HR department hiring procedure becomes more efficient due to the adoption of E-recruitment.	0.64
	NHRM3	Adoption of E-HRM portal to maintain the employee's record and information.	0.80
	NHRM4	HR department is re-organizing employees to appropriate positions effectively as per situations.	0.85
	NHRM5	The effort which I put in my job that fairly rewarded.	0.68
	NHRM6	One's contribution recognized reflects the fairness of reward system.	0.71
	NHRM7	Individual performance-based reward system.	0.60
	NHRM8	The organization allows me to take decisions regarding my job.	0.74
	NHRM9	Individual allow to taking decisions in the absence of top-level at immediate work situation.	0.63
	NHRM10	HR department keeps employees informed about the business issues as well as its performance.	0.77
	NHRM11	I feel that I am part of the team.	0.80
	NHRM12	Team members have the ability to solve the problem.	0.72
	NHRM13	Team members support the innovation process.	0.66
	NHRM14	Appropriate job training set for employees by the organization.	0.69
	NHRM15	The organization encourages their employees to extend their abilities.	0.78
	NHRM16	Training of new skills and technology to compete in the market.	0.80
Innovative Climate	(a = 0.83, CR = 0.92, AVE = 0.61)		
	IC1	Organization facilitates employees to generate and experiment with new/innovative creativity.	0.73
	IC2	There is free and open communication between team members in spite of working on different projects.	0.76
	IC3	Employees can handle non-routine problems and encourage creativity.	0.65
Organizational Innovation (OI)	IC4	Organization rewarded and recognized employees for their new ideas and innovation.	0.68
	(a = 0.91, CR = 0.95, AVE = 0.65)		
	OI1	The organization often tries new ideas.	0.72
	OI2	The organization often tries out the new trend to perform the task.	0.82
	OI3	The organization becomes innovative in its operations.	0.75
	OI4	The organization is frequently introduced new products and services.	0.66
	OI5	Innovation level in our organization is risky and resisted.	0.60
	OI6	Since 5 years introduction of new products has increased.	0.71

$\chi^2 = 11.115$;
Df = 6;
 $p < 0.05$;
CFI = 0.993;
TLI = 0.89;
IFI = 0.993;
RMSEA = 0.045

$\chi^2 = 16.151$;
Df = 12;
 $p < 0.05$;
CFI = 0.983;
TLI = 0.978;
IFI = 0.985;
RMSEA = 0.033

$\chi^2 = 18.152$;
Df = 15;
 $p < 0.05$;
CFI = 0.965;
TLI = 0.955;
IFI = 0.963;
RMSEA = 0.066

Table 2. Cont.

Variables	Items		Loading
	(a = 0.90, CR = 0.92, AVE = 0.66)		
Innovation Performance	IP1	Quality of products and services.	0.76
	IP2	Development of products and services.	0.82
	IP3	Evaluation of organization subjectively.	0.80
	IP4	Ability to retain and attract employees.	0.81
	IP5	The general relationship between employees and management.	0.77
	IP6	The motivation for creativity /Flexibility of employee.	0.83
	IP7	Innovative ideas	0.84

$\chi^2 = 20.127$;
Df = 8;
 $p < 0.05$;
CFI = 0.981;
TLI = 0.978;
IFI = 0.987;
RMSEA = 0.073

Table 3. Confirmatory factor analysis.

Model		χ^2	Df	TLI	CFI	RMSEA
Four factors	NHRM, IP, OI, IC	120.8	80	0.972	0.968	0.040
Three factors 1	OI + IC, NHRM, IP	212.3	82	0.927	0.937	0.066
Three factors 2	OI + NHRM, IP, IC	216.4	82	0.927	0.937	0.066
Three factors 3	NHRM + IC, IP, OI	312.6	82	0.867	0.887	0.102
Two factors	NHRM + OI + IC, IP	408.3	85	0.827	0.847	0.108
One factor	NHRM + OI + IC + IP	1068.2	90	0.532	0.602	0.203

N = 632, New Human Resource Management (NHRM), Innovation Performance (IP), Organizational Innovation (OI), Innovative Climate (IC).

Table 4. Descriptive statistics, reliability, and correlations.

Var.	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
Gender	0.69	0.48	1										
Marital Status	2.07	0.57	0.18	1									
Age	30.26	6.79	0.14 **	0.31	1								
Semi-govt organization	0.24	0.44	0.16	0.33	0.17	1							
Education	3.04	0.69	0.04	−0.27	0.12	0.06	1						
Managerial Level	1.90	0.51	0.05	0.16	−0.13 *	0.11	0.14	1					
Present Org. Tenure	5.07	4.47	0.12	0.76 **	0.15	−0.19 **	0.81 **	0.15	1				
NHRM	5.02	0.66	0.05	0.16 *	0.07	0.12	0.04	0.21 **	0.18	1			
OI	4.65	0.45	0.04	0.14 *	1	0.09	−0.04	−0.03	0.10	0.24 **	1		
IC	4.31	0.50	0.06	0.05	0.11	0.09	0.07	0.13	0.08	0.27 *	0.47 **	1	
IP	5.62	0.75	0.08	0.18 *	0.13 **	0.20	0.15	0.11	0.14	0.12 **	0.20 **	0.28 **	1

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, NHRM = New human resource management practices, OI= Organizational innovation. IC = Innovative climate, IP = Innovation performance.

Results found that NHRM was significantly correlated to organizational innovation ($r = 0.24$, $p < 0.01$) and innovation performance ($r = 0.14$, $p < 0.01$). The results of innovation performance and organizational innovation were positively correlated ($r = 0.20$, $p < 0.01$), explaining the prior proof of this investigation's hypotheses. The evidence of hierarchical regression analysis are presented in Table 5. Model 1 indicated that that new HRM was significantly linked with organizational performance ($\beta = 0.19$, $p < 0.001$). Thus, this investigation was supported by hypothesis 1 (H1). The second hypothesis H2 indicated that the relation among the new HRM and innovation performance was mediated by organizational innovation. Thus, this investigation was conducted by using the Baron and Kenny's test technique for the mediator [105].

Table 5. Hierarchical regression analysis results of organizational innovation and innovation performance.

	Innovation Performance			Organizational Innovation	
	M1	M2	M3	M4	M5
Gender	0.04	−0.07	0.04	−0.02	0.03
Marital Status	0.01	0.06	0.05	0.03	0.04
Age	−0.10	−0.09	0.08	0.02	0.01
Semi-government Organizations	−0.05	−0.06	0.05	−0.02	0.04
Education	0.10	0.06	0.09	0.03	0.05
Managerial Level	0.12	0.08	0.04	0.05	0.01
Present Org. Tenure	0.09	0.11	0.07	0.02	0.05
NHRM	0.19 ***		0.03	0.26 ***	0.28 ***
OI		0.23 ***	0.20 ***		
IC					0.29 ***
NHRM $\times$ IC					0.12 *
R2	0.23	0.27	0.19	0.33	0.34
Δ R2	0.13	0.17	0.08	0.25	0.10

Note. N = 632, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed tests).

According to their test, four steps are essential: in the first and second steps, the independent variables must have a positive relation with the dependent variables and mediator. In the third step, the role of the mediator must have a positive relationship with the dependent variable. The last step shows that the independent variable's effect must be smaller or partial on the dependent variable when the mediator is included. This investigation results indicated that (1) NHRM practices were highly significant with organizational innovation ($\beta = 0.26$, $p < 0.001$); (2) organizational innovation was highly significant with innovation performance ($\beta = 0.23$, $p < 0.001$); (3) NHRM was highly significant with innovation performance ($\beta = 0.18$, $p < 0.001$); and (4) the effect of NHRM practices have converted into insignificant ($\beta = 0.03$) when organizational innovation was regressed concurrently between NHRM practices and organizational performance that showed full mediation effect. Although, the fourth condition presented inconsistent results due to small size of coefficient. However, to support the result of condition 4, this study followed the guidelines of earlier studies. Huang, et al. [94] accepted condition 4 with a low coefficient of 0.02 where innovation performance was regressed on organizational forgetting and absorptive capacity.

Moreover, for test the moderating mediated effect (hypothesis 4), these four conditions were examined [106,107]: (1) positive relation of NHRM practices with innovation performance; (2) positive link between NHRM practices and the innovative climate that predict organizational innovation; (3) positive association of organizational innovation on organizational performance; and (4) through organizational innovation NHRM practices indirectly affect innovation performance, at low and high levels of innovative climate.

Outcomes of hypothesis 1 elaborated that NHRM was positively significant with innovation performance, supporting steps (1) for moderating mediation. The results of moderating regressions

were indicated in Table 5. This explains that the relation of NHRM with the innovative climate was positively significant on organizational innovation ($\beta = 0.12$, $p < 0.05$, M5). Moreover, hypothesis 3 was satisfactorily supported (2). Hypothesis 2 results support Condition (3).

Organizational innovation has significant interaction with innovation performance. Therefore, the findings of all three conditions show that the innovative climate moderates the mediation of organizational innovation for the relations of NHRM and innovation performance. Moderated mediation relationship results further validate according to the recommendations according to Preacher, Rucker, and Hayes [107], and this investigation was performed at a low and high degree of innovative climate.

Table 6 results indicated that the NHRM practices' indirect effects were highly significant with high level of innovative climate (indirect effect = 0.052, SE = 0.016, $p < 0.01$) rather than in the low innovative climate condition (indirect effect = 0.029, SE = 0.009, $p < 0.01$). The results of hypothesis 4 were supported by the condition.

Table 6. Bootstrap test of moderating mediation effects.

Moderator	Level	Mechanism of Indirect Effect	SE	95% IC LL	95% IC UL
Innovative Climate	High	0.052 **	0.016	0.026	0.090
	Low	0.029 **	0.009	0.013	0.053
	High-Low	0.021 **	0.010	0.006	0.050

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, n = 632, IC = confidence interval, Bootstrap samples = 5000.

5. Discussion

The term NHRM practices create positive effects on innovation performance and organizational innovation forms an important role between NHRM practices and innovation performance. By studying NHRM practices' effects, we analyzed NHRM practices' effects on innovation performance (IP) through the mediating role of organizational innovation and the moderating role of the innovative climate in a semi-government organization context. Initially, scholars argued that NHRM could impact on multidimensional factors of performance subjectively. However, to address the important role of NHRM practices, we check the critical role of NHRM that can enhance innovation performance through innovative behavior of organizational innovation and innovative climate.

The results of all hypothesis support the results of earlier studies. As the first hypothesis proposed the positive relationship between NHRM practices and innovation performance which is similar to the findings of studies of [72,73]. The mediating role of organizational innovation is also matched with previous studies [84,85] and this study proves that organizational innovation is equally important in the IT industry as it has significant roles in other industries [82]. Innovation has a significant contribution in IT firm performance and it is necessary to sustain sustainable a competitive advantage in the face of cutthroat competition. The importance of an innovative climate has also been validated as the moderating role of the innovative climate was proved between NHRM practices and innovation performance. These results are similar to earlier studies which describe that a strong innovative climate leads towards innovation performance [63]. Finally, the moderated-mediation results contribute to the literature and body of knowledge of HRM.

5.1. Theoretical Implications

The research model of this study is based on NHRM practices, organizational innovation, and innovation performance. The innovative climate uses an investigating framework to examine the critical role of NHRM practices and organizational innovation. Empirical investigations were applied through 632 survey responses of Pakistani semi-government organizations. The results were validated by three important hypothetical implications: firstly, the role of NHRM practices on semi-government organizations' innovation performance was fully discussed for better understanding.

Previously, researchers gave little attention to NHRM practices' importance; neither had they discussed the role of NHRM practices nor the direct effects of NHRM practices on innovation performance. This investigation firstly discussed the role and effect of NHRM practices on innovation performance via static technology-organization-environment theory, which has emerged as a competitive advantage for the semi-government organization under global competition.

Secondly, this investigation introduced organizational innovation as a signifying notion between NHRM practices and innovation performance and analyzed the mediating effects. Another view of this study is that the role of NHRM practices cannot be applicable without the implementation of innovative behavior. Thus, organizational innovation is necessary to determine better implications of NHRM practices and innovation performance, and this is considered a new development in semi-government organizations.

Finally, compared with earlier studies, this study added a new exploration of NHRM practices on innovation performance. Specifically, we checked the indirect effect of NHRM practices significantly, as well as the growth of the innovative climate as a moderator between NHRM practices and organizational innovation. We analyzed that when the innovative climate would be higher its mean effect of NHRM practices on innovation performance via organizational innovation was positively stronger. Thus, our finding explained that there might not be direct relationships between NHRM practices and innovation performance, as was assumed earlier. There were many factors involved between them, such as innovation. The role of innovation was very important in this study. With organizational innovation as a mediator and the innovative climate as a moderator, both were the main pillars of this investigation. Additionally, contextual variables (mediator and moderator) were not only considered for their importance but also the role and effectiveness of NHRM practices were considered the main account.

5.2. Managerial Implications

This investigation managerially implicates to increase innovation performance in semi-government organizations, especially in Pakistan. The effects of an innovative climate as a moderator between NHRM practices and innovation performance recommends identifying new technologies, customers' desires, and market trends. The innovative climate judges environmental turbulence and copes by recognizing the demands of the market. On the other hand, managers should try to concentrate on NHRM practices, procedures, and measures for emerging market goals. They should also be aware of the conventional knowledge, trusts, processes, and values, because it would be better for new findings of innovation performance and should be great for the validity of practices. Moreover, managers must encourage NHRM practices in the organization, try to promote new skills, remove hurdles for learning, and boost the rapidity of working skills. Thus, NHRM practices motivate employees to perform notable working experiences in the organizations.

6. Conclusion, Limitations, and Future Research Directions

The present investigation explained that the NHRM practices and organizational innovation play a vital role to enhance and promote the innovation performance of semi-government IT organizations of Pakistan. The main attention of this investigation is to reveal the role and effects of NHRM practices significantly towards the success of innovation performance. Therefore, the current study concludes that NHRM is an important policy instrument in the IT industry and IT firms should develop effective HRM strategy by promoting innovation in all departments of the organizations. Innovation performance can be triggered through effective HRM policy and strengthening the innovative climate.

However, every study has some limitations, as this study has, that must be discussed for future implementation. Firstly, data of this study sample is cross-sectional and cross-cultural; future studies can conduct longitudinal research to check the evolutionary perspective of NHRM's effect on innovation performance. Qualitative research (depth interviews) can also be a potential study, considering related experts' opinions can provide different views of NHRM. The study framework

can be validated in other sectors, such as manufacturing industry, automobile industry, and service industry. Moreover, the findings of this study can be validated in other similar developing countries. Secondly, by exploring the role and effects of NHRM practices on innovation performance innovation can be upgraded with the passage of time for new knowledge contexts. More empirical evidence is needed to obtain accurate results. NHRM practices' main processes (such as e-recruitment, decision making, compensation, etc.) can also be examined with respect to innovation performance. Thirdly, we analyzed that the innovative climate has a moderating role on the mediation of organizational innovation. Internal innovative climate was discussed, but the externally innovative climate could be examined. Thus, for future directions both internal and external factors of the innovative climate can be discussed. Lastly, this study exposes that NHRM practices consider a strong influential factor of organizational innovation and performance of semi-government organizations in Pakistan. As such, we believe that semi-government organizations in Pakistan do not demoralize the innovational process, and take innovation as a developing motive. Thus, the concept of this study can be re-examined with increased strength.

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