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Influence of Human-AI collaboration identify on work performance in China's internet industry

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Abstract

This study explored the impact of human-machine collaboration on employees' work performance and made an in-depth analysis based on career construction theory. The quantitative analysis method was utilized and results showed that man-machine collaboration had a significant impact on employee performance and can also promote the career development of employees. It was found that the impact of man-machine collaboration on employee performance was influenced by many factors, including employee's personal characteristics, manner and degree of man-machine collaboration, and organizational environment. Therefore, in practice, enterprises should adopt appropriate ways and strategies based on to the actual situation and needs of employees to maximize the advantages of man-machine collaboration. This study also provided enterprises with empirical support and theoretical guidance to improve employees' work performance and career development level. At the same time, contributed useful reference and enlightenment for future research.

Keywords: Artificial Intelligence, man-machine collaboration identification, job performance

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1. Introduction

With the rapid development of technology, the internet industry has occupied a pivotal position in the Chinese economy. At the same time, human-machine collaboration, as a new working mode in the internet industry, is gradually becoming a research hotspot. In recent years, China's population structure has undergone significant changes, with the birth rate decreasing year by year, leading to potential shortages in the future labor market. This means that companies need to find new ways to address labor shortages. As a new type of work mode that can improve work efficiency and reduce human dependence, human-machine collaboration is gradually receiving attention from enterprises. New scenarios of human-machine collaboration have emerged, and the relationship between humans and machines has been redefined (Mindell, 2017). New technologies such as artificial intelligence have changed the previous shift from manual labor to mental labor (Qu Xiaobo, 2019).

Human-machine collaboration has become an important means for enterprises to improve work efficiency, reduce costs, and enhance innovation capabilities. At the same time, the occupational adaptability of employees is also of great significance for the sustainable development of enterprises. Career adaptability refers to the ability of employees to adjust themselves in response to work tasks and work environments (Savickas,et. al.,2012). The widespread application of technologies such as artificial intelligence and big data has made human-machine collaboration a new working mode in the internet industry. This work mode not only improves work efficiency, but also provides employees with more development opportunities and space. However, this transformation also puts higher demands on the career adaptability of employees. The demand for employee career development: In the human-machine collaborative work mode, employees need to continuously learn and improve their skills and abilities to adapt to the constantly changing work environment and requirements. The occupational adaptability of employees is not only related to personal career development, but also to the sustainable development of enterprises. In the fierce market competition, enterprises need to continuously enhance their own competitiveness. Human machine collaboration can help enterprises improve work efficiency, reduce costs, and enhance innovation capabilities, but all of this cannot be achieved without the active participation and contribution of employees. The occupational adaptability of employees is of great significance for enhancing the competitiveness of enterprises. The demand for talent quality in society is also increasing. The occupational adaptability of employees is one of the important standards for measuring talent quality. For both enterprises and employees, understanding the relationship between human-machine collaboration and employee career adaptability can help improve their overall quality and competitiveness.

Human machine collaboration has brought significant positive impacts in many aspects, such as improving work efficiency and optimizing decision-making. Although human-machine collaboration has brought the aforementioned negative impacts, we cannot deny its important role in improving efficiency, promoting innovation, and other aspects. The key lies in how to balance its positive and negative impacts through reasonable policies, regulations, and technological means, so as to bring more benefits to humanity. Developing a negative attitude towards work (Li et al., 2019). Artificial intelligence requires employees to keep up with the times and learn advanced technologies to adapt to constantly changing work patterns (Kong et al., 2019). In the era of human-machine collaboration, it is necessary to adhere to ethical norms that prioritize human centeredness, fairness, and harmony, maximize the value of employees in independent decision-making, and improve management efficiency and effectiveness (Cerka et al., 2017).

In today's information age, the impact of human-machine collaboration identification on employee work performance is becoming increasingly significant (Meng 2020). Firstly, the awareness of human-machine collaboration helps employees clarify work goals and tasks, thereby improving work efficiency. Secondly,

emotional identification can enhance employees' sense of belonging and loyalty, thereby enhancing work engagement. Finally, behavioral recognition is reflected in employees' proficiency in using human-machine collaboration tools, which helps them efficiently complete various tasks. Therefore, strengthening human-machine collaboration identification will help improve employee work performance.

Although existing research has achieved some results in the relationship between human-machine collaboration identification and employee job performance, there are still some research gaps. Firstly, further exploration is needed on the sub variables of human-machine collaboration identification and their specific impact mechanisms on employee job performance. Secondly, there may be differences in the relationship between human-machine collaboration identity and employee job performance across different industries and cultural backgrounds, and more interdisciplinary empirical research is needed. Finally, there is a lack of in-depth research on the long-term relationship between human-machine collaboration identification and employee job performance to reveal its dynamic changes and impacts. Therefore, future research should focus on these research gaps to gain a more comprehensive understanding of the impact of human-machine collaboration identification on employee job performance.

This research will be carried out in China's Internet industry, because China is a rapidly developing economy and has a significant growth in the application of Internet technology. In addition, China has abundant human resources and diverse cultural backgrounds, which provides a unique opportunity to study the impact of human-machine collaboration identity in different industries and cultural backgrounds. Currently, the impact of human-machine collaboration identification on employee job performance has not been fully studied. Although some studies have explored certain aspects of human-machine collaboration identity, these studies are often limited to specific industries or contexts.

For the researcher, there are several reasons for conducting this research. Firstly, professional background drives her to conduct this research. As a graduate student majoring in business administration, her strong interest in human-machine collaboration can be applied in her workplace. She is well aware of the importance of human-machine collaboration in modern industrial automation, especially in rapidly industrialized countries like China. Therefore, she hopes to gain a deeper understanding of the impact of human-machine collaboration identity through this study and explore how to better utilize this to improve work performance. Secondly, her deep emotional attachment to her hometown and motherland hopes that through this research, she can make contributions to the development and promotion of greater progress in the application of technology in China's Internet industry. Finally, she has a strong interest in exploring and solving real-world problems. Human computer collaboration identity is a complex and interesting topic that involves multiple fields such as psychology, sociology, industrial design, and human-computer interaction. The researcher believes that through in-depth research on this topic, not only she can improve her understanding of the field of human-computer interaction, but also lay a solid foundation for her future career.

In summary, this study establishes a data model for human-machine collaboration, occupational adaptability, and employee work performance to improve people's understanding of artificial intelligence. By analyzing employee occupational adaptability, it is of great significance to improve the work performance of employees in the Internet industry. It provides suggestions and guidance for improving work performance for employees in the era of artificial intelligence and for human resource management and practice. These are the reasons the researcher conducted this work; it ignited her passion and curiosity in this field.

Objectives of the Study - This study aimed to determine the impact of human-machine-collaboration on work performance of the employees in internet company in China. Specifically, it aimed to assess the impact of the human-machine-collaboration to employees work in terms of task allocation, communication and coordination, and decision making and control; determined the employees work performance in terms of individual, organizational and external factors. The study also tested the significant relationships between human-machine collaboration and work performance. In the end an action plan was proposed to enhance the

usage of machines to ensure their long-term effectiveness.

2. Methods

Research Design - This study reviewed relevant domestic and foreign literature from both theoretical and empirical perspectives, selecting human-machine collaboration contracts as independent variables, occupational adaptability as mediating variables, and employee job performance as dependent variables. Through theoretical models, the relationship between the two is empirically analyzed to test the mediating role of occupational adaptability. Combined with empirical research results, provide reliable theoretical guidance and practical management measures to improve the work performance of employees in the Chinese Hu Liang Net industry in the era of artificial intelligence. Firstly, by conducting in-depth research on the impact of human-machine collaboration on work performance, we further enriched and develop the theory of human-machine interaction, provided more beneficial ideas and methods for future research and application. Secondly, human-machine collaboration involves multiple disciplines, and through this research, it promoted the interdisciplinary integration between these disciplines, promoting academic exchanges and development in related fields. With the popularization of human-machine collaboration, the demand for related talents is also increasing. Through this research, it provided useful references for improving the talent education system and cultivating more talents with human-machine collaboration capabilities. On the one hand, it enhanced the competitiveness of enterprises. By implementing human-machine collaboration, enterprises can improve work efficiency and quality, reduce costs, and thus enhance their own competitiveness. On the other hand, promoting enterprise innovation and development: human-machine collaboration helps to promote enterprise innovation and development. Through human-machine collaboration, more creativity and ideas can be generated, driving technological progress and business model innovation.

Participants of the Study - Participants in the survey included: 200 employees in China's Internet industry, including programmers, designers, product managers, marketing personnel and all other personnel working in Internet companies; Internet company managers understand the company's work-flow and performance management, and can provide human-computer cooperation management perspective and suggestions. They provided insights on human-computer collaboration from an academic and theoretical perspective. Customers or users provide feedback and suggestions on the performance of human-machine collaboration from a practical perspective. These participants contributed to a more comprehensive understanding of the impact of human-computer collaboration on job performance in China's Internet industry, and provided useful references for further research and application in this field.

Instruments of the Study - This study used a survey questionnaire for data collection. It mainly came from a published study, some of which have undergone significant revisions to meet research objectives. In terms of studying human-machine collaboration contracts and work performance, this study used SPSS 28.0 and Excel to collect data from over 200 programmers, designers, and product managers in Chinese internet companies through multiple channels. By conducting online and offline research, utilizing professional questionnaire design and survey platforms such as QuestionStar, we set up QuestionStar services to ensure the accuracy of the surveyed population. Made good use of the advantages of the era of online artificial intelligence, distributed questionnaires through social platforms such as Moments, and invited target groups to fill out the questionnaire.

Data Gathering Procedure - To conduct a questionnaire survey on programmers, designers, and product managers of Chinese internet companies, we first needed to clarify the purpose, scope, and expected impact of the research. On this basis, communicated with relevant departments or management of the enterprise to seek permission to conduct research. After obtaining permission, we began preparing to collect data. This typically involved retrieving relevant data from enterprise databases, servers, or related platforms. In this process, we needed to ensure the integrity and accuracy of data, while complying with relevant data protection and privacy policies. The next step is to distribute and manage the questionnaire. To ensure the objectivity and effectiveness of the research, we needed to develop a detailed plan to distribute and manage the questionnaire. This was done

through various channels, such as email, internal communication tools within the enterprise, social media platforms, or professional online survey platforms. It is important to ensure the anonymity and privacy protection of the questionnaire, while providing clear guidance to ensure that participants understood and completed the questionnaire according to requirements. After distributing the questionnaire, we needed to manage and organize the data. This included cleaning, organizing, and categorizing the collected data for subsequent analysis and interpretation. In this process, we also needed to pay attention to data compliance and ethical issues, ensuring that all activities complied with relevant laws, regulations, and corporate policies. Finally, after the data collection was completed, we needed to summarize and analyze the data to draw objective conclusions. This process required the use of professional statistical software or analytical tools to analyze and interpret research objectives and questions. In summary, the data collection activity of questionnaire surveys targeting programmers, designers, and product managers of Chinese internet companies were a systematic process that required careful planning and management. The key lies in ensuring the legality of research, data integrity, and privacy protection, as well as following the guiding principles of relevant regulations and corporate policies.

Ethical Considerations - Ethical considerations were practiced in the conduct of the research work to warrant that every information gathered were used for research purposes only to maintain the quality and integrity of the research. The researchers sought the consent of Internet company managers through letters and communication to ensure that the target respondents were ready to answer the necessary questions involved in the study. It also ensured the confidentiality and anonymity of the respondents by not seeking their names as they were answering the questionnaires. The researcher ensured that the respondents voluntarily answer the questionnaires according to their will. Lastly, it was also ensured that none of the respondents of the study will be hurt or harmed and their safety and security was of top priority.

Data Analysis - The desired documents and figures were tallied, encoded and analyzed using various statistical measures. This study used frequency distribution, weighted mean and rank to describe the human-machine collaboration technology functionalities in terms of ease of use, communication, and safety and security; assess the level of work performance in terms of task, contextual, adaptive; test the significant relationship of human-machine collaboration to work performance. The result of Shapiro-Wilk Test showed that p-values of all variables were less than 0.05 which means that the data set was not normally distributed. Therefore, Spearman rho was used as part of the non-parametric tests to determine the significant relationship. All analyses were performed using SPSS version 28.

3. Results and discussion

Table 1

Summary Table on Human-Machine Collaboration Technology Functionalities

Key Result Areas	Composite Mean	VI	Rank
Ease of Use	3.89	Strongly Agree	1
Communication	3.86	Strongly Agree	2
Safety and Security	3.54	Strongly Agree	3
Grand Composite Mean	3.76	Strongly Agree	

Legend:3.50-4.00=Strongly Agree;2.50-3.49=Agree;1.50-2.49=Disagree;1.00-1.49=Strongly Disagree

Table 1 presents a summary of the respondents' evaluations of the functionality of human-machine collaboration technology. The comprehensive average of 3.76 indicates that the respondents generally express strong agreement. This means they hold a very positive attitude towards the technology. Respondents may believe that the technology is powerful and comprehensive, able to meet their needs and solve the problems they face. If human-machine collaboration technology is easy to use, the likelihood of respondents agreeing with its functionality will also increase. Respondents may believe that this technology has improved their work or

production efficiency. If respondents believe that human-computer collaboration technology performs well in data protection and network security, this may also be an important reason why they agree with the technology. If respondents have had a good experience using human-machine collaboration technology, they are more likely to agree with its functionality. Respondents may expect human-machine collaboration technology to provide certain functionalities, and this technology precisely meets these expectations, thus gaining their approval. The respondents agree with the functionality of human-machine collaboration technology based on various factors, including its functionality, ease of use, efficiency, safety, user experience, etc. These factors collectively reflect the advantages and value of human-machine collaboration technology in meeting the needs of respondents.

Among the listed projects, "usability" ranked first with an average score of 3.89 and a verbal explanation of "strongly agree". This means that China's Internet industry has excellent performance in the ease of use of human-computer collaboration technology, which means that the following aspects: China's Internet industry has a high level of technology in human-computer collaboration technology, and can provide more convenient, intuitive and easy-to-use technical solutions. The human-computer collaboration technology in China's Internet industry has a high degree of user friendliness, and users can get a better experience and feel in the use process. The usability ranking of human-machine collaboration technology first may indicate that the industry has strong market competitiveness and can attract and maintain user usage. In general, ranking No. 1 means that China's Internet industry is outstanding in the ease of use of human-computer collaboration technology, with a high level of technology, user friendliness and market competitiveness. This helps to enhance the image and reputation of the industry, and attract more users and business cooperation opportunities. Human computer collaboration cannot be separated from the development of artificial intelligence, which can be planned into four stages (Huang, et. al., 2018): mechanical intelligence, analytical function, intuitive intelligence, and empathetic intelligence.

On the other hand, communication ranked second with an average score of 3.86, and the verbal explanation was "strongly agree". Next are safety and security, with an average score of 3.54, verbally explained as "strongly agree". This means that in China's Internet industry, China's technology in network security and security is also increasingly mature. Enterprises and institutions have adopted advanced security technologies, such as data encryption, identity verification, firewalls, etc., which provide strong security guarantees for human-machine cooperation. The Chinese government has also become more and more strict in its supervision of the Internet. It has formulated a series of network security regulations, requiring enterprises and institutions to comply with relevant regulations and strengthen security precautions. The implementation of these regulations provides legal protection for human-machine cooperation. The awareness of user privacy protection is gradually increasing. Enterprises and institutions are increasingly valuing the protection of user data in order to win the trust of users. They have implemented strict data encryption and privacy protection measures to ensure the security and privacy of user data. The safety and security of human-machine collaboration are not only technical and regulatory issues, but also involve personnel training and management. China's Internet industry has also done a lot of work in this regard, including regular security training, the establishment of a sound security management system, etc., to ensure the standardization and security of personnel operations. With the popularity of the Internet, more and more user data is stored in the network. If these data are leaked or maliciously used, it will pose a serious threat to the privacy and property of users. Therefore, the safety and security of human-machine collaboration are key to protecting user data from being leaked or maliciously used. If the safety and security of the Internet are not guaranteed, the network order will be seriously affected. Malicious attacks, cybercrime, and other issues can occur in large numbers, causing great distress and losses to the normal operation of enterprises and individuals. Therefore, the safety and security of human-machine cooperation are important guarantees for maintaining network order. The safety and security of human-computer cooperation is also an important factor in promoting the development of the Internet. Only when the safety and security of the Internet are fully guaranteed will enterprises and individuals trust and use the Internet more, thus promoting the further development of the Internet industry. In general, the high safety and security score of human-computer cooperation indicates that China's Internet industry has done a good job in safety and security, which is of great significance for protecting

user data and maintaining network order.

Consistent with the development of artificial intelligence, human-machine collaboration can be divided into four types: artificial intelligence tools, artificial intelligence assistance, artificial intelligence employees, and artificial intelligence partners (Meng, 2020). The human-computer collaboration technology has the importance of ease of use and communication in China's Internet industry. With the development of technology, more and more enterprises and individuals are using human-machine collaboration technology to improve work efficiency and innovation ability. If these technologies are difficult to use, their value will be greatly reduced. Therefore, in order to make these technologies easier to use, many companies have invested significant resources in optimizing user interfaces and experiences, making it easy for even users without a technical background to get started. Secondly, communication plays an important role in human-machine collaboration. In the process of human-machine collaboration, machines and humans need to be able to understand each other, clarify their respective roles and expectations. This requires an effective way of communication so that machines can understand human needs and intentions, as well as the working principles and limitations of machines. Through effective communication, the efficiency and effectiveness of human-machine collaboration will be significantly improved. In China's Internet industry, the ease of use of human-computer collaboration technology and the importance of communication are self-evident. Many companies are committed to improving the usability and communication effectiveness of human-machine collaboration technology to better meet user needs and enhance user experience. At the same time, this has also promoted the further development and application of human-machine collaboration technology in China.

Table 2

Summary Table on Level of Work Performance

Key Result Areas	Composite Mean	VI	Rank
Task	3.74	Strongly Agree	1
Contextual	3.69	Strongly Agree	2
Adaptive	3.68	Strongly Agree	3
Grand Composite Mean	3.70	Strongly Agree	

Legend:3.50-4.00=Strongly Agree;2.50-3.49=Agree;1.50-2.49=Disagree;1.00-1.49=Strongly Disagree

Table 2 presents a summary of the evaluation of job performance levels by respondents. The comprehensive average of 3.70 indicates that respondents generally express strong agreement. This means that respondents have a high evaluation of their job performance, which usually means that they have performed well in their work and are able to meet or exceed the company's expectations. They may have completed high-quality work, met customer expectations, or effectively driven project progress. The respondents have high standards for their work performance, indicating that they have relatively strict requirements for themselves. They may have a strong sense of responsibility and self motivation, constantly striving to improve their work level in order to achieve higher performance. The interviewees have a clear understanding of their strengths and weaknesses in their work. They may be able to accurately evaluate their job performance and make improvements to address their shortcomings. This self-awareness helps them better plan their career development and enhance their work abilities. Respondents have a higher evaluation of their job performance level, which may also be due to receiving positive feedback and recognition. This may come from affirmation and appreciation from superiors, colleagues, or clients. This positive feedback can motivate respondents to continue maintaining good work performance and further improve their performance level. In short, this means that they perform well in their work, have high standards for themselves, are able to clearly recognize their strengths and weaknesses, and receive positive feedback. These factors help them improve their work abilities and career development. The level of job performance can ensure consistency with the overall goals and objectives of Chinese Internet enterprises.

Among the listed projects, "Task" ranked first with an average score of 3.74 and a verbal explanation of

"strongly agree". For Internet enterprises, tasks play an important role in job performance. Task performance is closely related to an individual's ability, proficiency in completing tasks, and work knowledge. Each position has corresponding task performance indicators, which are usually refined into key performance indicators (KPIs). Goal setting and achievement: Task performance provides a clear direction for individuals to set and achieve goals in their work. By setting specific tasks and goals, employees can clearly understand their job expectations and strive to achieve these goals. This clear goal orientation helps to improve employee motivation and work quality. Improving skills and abilities: The process of completing tasks is also an opportunity to enhance individual skills and abilities. By constantly challenging and completing tasks, employees can accumulate experience, learn new knowledge and skills, and thereby improve their work efficiency and effectiveness. Promoting teamwork: Task performance not only focuses on individual work performance, but also involves teamwork and collaboration within the team. Reasonable task allocation and team collaboration can promote collaboration among team members, improve the efficiency and productivity of the entire team. Improving workflow: By evaluating and analyzing task performance, organizations can identify problems and bottlenecks in the workflow, and then make improvements and optimizations. This helps to improve the operational efficiency and effectiveness of the entire organization. Motivating employees: A good task performance evaluation and reward mechanism can motivate employees to work harder, improve their job satisfaction and sense of belonging. This positive motivation helps to improve employee motivation and work quality.

Work performance refers to the results achieved by employees in specific activities (Peng, 2003). Although individuals have differences in attitude, ability, and motivation, the work output of employees within a fixed time frame is objective (Bernardin, et. al., 1984).

On the other hand, context ranks second with an average score of 3.69, and verbal explanation is "strongly agree". Next is "adaptability", with an average score of 3.68, and the verbal explanation is "strongly agree". This means that employees can demonstrate high work ability and efficiency in a human-machine collaborative environment. The reasons for this high adaptability ranking include: technical proficiency: employees are able to proficiently master the technologies and tools required for human-machine collaboration, including various software, hardware, and communication technologies. This level of proficiency can improve employee work efficiency and accuracy, thereby enhancing work performance. Communication and collaboration skills: Human machine collaboration usually involves cross departmental and cross domain team collaboration, and employees need to have good communication and collaboration skills to solve various problems, coordinate resources, and drive project progress. This ability helps to improve the overall performance and work efficiency of the team. With the continuous development and progress of technology, the fields and requirements of human-machine cooperation are also constantly changing. Employees need to have the ability to quickly learn and adapt to new environments and technologies to cope with constantly changing work demands. This learning ability can help employees better cope with challenges and improve work performance. In the environment of human-machine collaboration, employees need to unleash innovative thinking, explore new work modes and methods, in order to improve work efficiency and quality. This innovative ability helps to drive organizational innovation and development, thereby improving work performance. In summary, a higher ranking of employee adaptability to human-machine collaboration in job performance indicates that employees exhibit higher work abilities and efficiency in a human-machine collaboration environment. This reflects the advantages of employees in terms of technical proficiency, communication and collaboration skills, learning ability, and innovation ability, which helps to improve the overall performance and work efficiency of the organization. In addition, the fact that the environment accounts for a relatively high proportion of work performance indicates that organizations need to attach importance to creating an environment conducive to improving work performance, including providing a good physical environment, technical equipment, socio-cultural environment, work tasks and roles, organizational processes and systems, incentive and reward mechanisms, and resources and support.

As seen in the table 3 the computed rho-values ranging from 0.225 to 0.232 indicate a weak direct relationship between ease of use and the sub variables of work performance namely task and adaptive while the computed rho-value of 0.109 indicate a very weak direct relationship between ease of use and contextual. There

was a statistically significant relationship between ease of use and the sub variables of work performance namely task and adaptive because the obtained p-values were less than 0.01.There is a significant relationship between the ease of use of Chinese Internet enterprises and the sub variables of job performance (tasks and adaptability). Work performance refers to the labor output of employees within a fixed time frame within a unit (Lu,et. al., 2006). Measure employee work performance by the degree to which organizational goals are achieved (Hawkins,et. al., 1979). With the rapid development of Internet technology in China, small differences in the ease of use of Internet products and services provided by enterprises may directly affect the efficiency of employees in their work. Products with good usability can significantly reduce employee troubles during operation and improve work efficiency. China has rich cultural and regional differences, and different regions may have different work habits and expectations. Internet enterprises need to take into account the cultural background and habits of different regions and provide products and services that are more in line with the needs of local users. Such products and services not only improve task completion efficiency, but also enhance adaptability. With the continuous improvement of China's education and training system, more and more employees have the ability to use advanced Internet technology. This makes Internet enterprises pay more attention to ease of use when designing and improving products, so that employees can quickly adapt and use.

Table 3

Relationship Between Human-Machine Collaboration Technology Functionalities and Work Performance

Variables	rho	p-value	Interpretation
Ease of Use			
Task	0.225**	< .001	Highly Significant
Contextual	0.109	0.053	Not Significant
Adaptive	0.232**	< .001	Highly Significant
Communication			
Task	0.231**	< .001	Highly Significant
Contextual	0.295**	< .001	Highly Significant
Adaptive	0.247**	< .001	Highly Significant
Safety and Security			
Task	0.201**	< .001	Highly Significant
Contextual	0.433**	< .001	Highly Significant
Adaptive	0.508**	< .001	Highly Significant

***. Correlation is significant at the 0.01 level*

The reasons for this result are: market competition: in China's Internet market, the competition is extremely fierce. In order to stand out in competition, enterprises need to continuously optimize their products and services, improve usability, enable employees to complete tasks more efficiently, and improve work performance. China's policy environment: With the increasingly strict supervision of the Chinese government on the Internet industry, Internet enterprises need to pay more attention to compliance and user experience. The improvement of usability is not only a user demand, but also a necessary condition for the compliance development of enterprises. User habits: With the popularization of smart phones and the formation of user habits, users have higher and higher requirements for Internet products and services. Products with good usability can better meet user expectations, thereby increasing the market share and user satisfaction of the enterprise. To sum up, there are many reasons for the significant relationship between the usability of Chinese Internet enterprises and the sub variables of job performance, including technology development level, cultural background, education and training, market competition, policy environment and user habits. These factors work together to make Internet enterprises pay more attention to ease of use when designing and improving products, so as to improve work performance and market competitiveness.

The computed rho-values ranging from 0.231 to 0.295 indicate a weak direct relationship between

communication and the sub variables of work performance. It shows that there was a statistically significant relationship between communication and the sub variables of work performance since the obtained p-values were less than 0.01.There is a significant relationship between the communication of Chinese Internet enterprises and the sub variables of job performance, which is related to the following factors: China is a country with significant regional cultural differences, and there may be significant differences in communication methods and habits between different regions. In Internet enterprises, effective communication is critical to team collaboration and project progress. Therefore, the communication style and efficiency within a company may be influenced by regional culture, which in turn can affect work performance. With the popularization of Internet technology, more and more enterprises use online communication tools for team collaboration and project management. The use of these tools greatly facilitates communication among team members, improves communication efficiency, and thus has a positive impact on work performance.

In Internet enterprises, the completion of projects often requires the cooperation of multiple departments and multi team. Good communication can ensure the accuracy and timeliness of information transmission, improve the efficiency and effectiveness of team collaboration, and thus enhance work performance. Innovation is an important driving force for the development of enterprises. A good communication environment helps to stimulate employees' innovative thinking, promote knowledge sharing and experience exchange within the enterprise, and thus improve work performance. The communication style and effectiveness of leaders often have a significant impact on the team's work performance. If leaders can adopt an open and inclusive communication approach, encouraging employees to express their opinions and suggestions, it will help improve team cohesion and work performance. To sum up, there are many reasons for the significant relationship between Chinese Internet enterprise communication and the sub variables of job performance, including regional cultural differences, technology applications, team collaboration needs, innovation atmosphere and leadership style. These factors interact with each other and together affect the effectiveness of internal communication and work performance within the enterprise.

The computed rho-values ranging from 0.201 to 0.508 indicate a weak to moderate direct relationship between safety and security and the sub variables of work performance. It shows that there was a statistically significant relationship between safety and security and the sub variables of work performance since the obtained p-values were less than 0.01.There is a significant relationship between the safety guarantee of Chinese Internet enterprises and the sub variables of job performance. This phenomenon may be affected by the following local environmental factors: With the rapid development of China's Internet industry, the state has increasingly strict supervision over Internet enterprises. Enterprises are facing increasing pressure in ensuring information security, compliant operations, and other aspects. In this context, the importance of safety protection by enterprises is constantly increasing to adapt to policy and market changes. China's Internet technology is changing with each passing day, and new technologies are constantly emerging. However, with the advancement of technology, network security issues have become increasingly prominent. Internet enterprises need to invest a lot of resources to ensure their own system and data security and prevent information leakage and network attacks.

The reasons for this result are: in Internet enterprises, data and information assets are important assets of enterprises. If enterprises cannot guarantee the security of these assets, it may lead to serious consequences such as business interruption and customer loss. Therefore, enterprises need to invest a significant number of resources to ensure the security of data and systems, in order to ensure business continuity. Proper security measures in enterprises can greatly reduce the distraction of employees due to safety issues at work and improve their work efficiency. In a safe environment, employees can focus more on their work and improve work performance. The information security status of a company is directly related to its reputation and brand image. If a company suffers from information leakage or attacks due to security issues, it will cause great damage to the company's reputation, thereby affecting customer trust and business development. Therefore, enterprises need to attach importance to safety assurance work in order to maintain a good brand image.

Conclusion: There are many reasons for the significant relationship between the sub variables of security

and job performance of Chinese Internet enterprises, including policy and regulatory environment, technology development level, business continuity, employee work efficiency and brand image. These factors interact with each other and together affect the safety and work performance of the enterprise.

4. Conclusion and recommendations

Human computer collaboration identity has a positive impact on employees' job performance. That is to say, the higher the awareness of human-computer collaboration, the better the performance of the corresponding employees. Enterprises and employees with high awareness of human-computer cooperation have more optimistic psychological expectations for their career development in the era of artificial intelligence, and are more confident and optimistic in embracing future changes. And employees will think that artificial intelligence will not work for them, but can improve their work efficiency. Therefore, employees will work harder towards the symbiosis of human-computer cooperation, actively adapt to the changes brought by the environment, and learn new knowledge and skills to match the work scene of human-computer cooperation, so as to improve work performance.

Through human-AI cooperation, employees can improve work efficiency with the help of technical tools. Technology can help process large amounts of data, perform repetitive tasks, and provide real-time information and feedback, thus reducing work time and error rate, enabling employees to focus more on innovation and value-added activities. AI can provide employees with the knowledge and skills they need. Through online training, simulation software and other tools, employees can get better learning and development opportunities. This not only enhances their professional ability, but also improves their ability to deal with complex problems. Human-AI cooperation can enhance the motivation and participation of employees. When employees see how technology can help them improve their work, they will be more enthusiastic about their work. At the same time, when technology provides them with more autonomy and control, their sense of responsibility will also increase, which will further improve their work performance. Human-AI cooperation technology helps to create a more seamless and inclusive working environment, and employees can collaborate effectively no matter where they are. This will not only help to improve employees' satisfaction, but also help to improve employees' willingness to stay. Human-AI cooperation can promote employees' innovative thinking. Technology provides employees with new perspectives and ways of thinking, and stimulates their creativity. This innovative spirit can often be translated into actual work results, so as to improve work performance. In general, the positive impact of human-computer collaboration identity on employees' job performance is mainly reflected in improving efficiency, improving ability, enhancing motivation, creating a better working environment and promoting innovation. In the future, with the further development of technology, the advantages of human-computer cooperation will be more prominent, and the work performance of employees will be further improved in this cooperation mode.

With the rapid development of digital technology and artificial intelligence, human-computer cooperation has become a key factor for enterprises to enhance competitiveness. In order to better meet the digital intelligence era, enterprises need to take a series of measures to improve the recognition level of human-computer cooperation, so as to give full play to the advantages of human-computer cooperation. Meet the digital intelligence era and improve the recognition level of human-computer cooperation Enhance employees' awareness of human-computer cooperation: enterprises should strengthen the publicity and education of human-computer cooperation, so that employees can deeply understand the concept, advantages and application scenarios of human-computer cooperation. Through training, lectures, case sharing and other ways, we will help employees change their traditional work concepts and improve their awareness and acceptance of human-computer cooperation. Build trust and transparent working environment: human-computer cooperation needs to be based on mutual trust and transparency. Enterprises should ensure that employees understand the working principle and decision-making basis of artificial intelligence, and let them trust technical tools. At the same time, enterprises should strengthen communication with employees, let them participate in the decision-making process of human-computer cooperation, and improve their sense of participation and identity.

People oriented, pay attention to the emotional needs of employees: although technical tools play an important role in human-computer cooperation, the emotional needs of employees are equally important. Enterprises should pay attention to the emotional experience of employees, respect their opinions and needs, and let them feel valued and supported. At the same time, enterprises should encourage employees to give full play to their creativity and imagination, and make human-computer cooperation an important platform to stimulate employees' potential. Formulate reasonable human-computer cooperation specifications: in order to give full play to the advantages of human-computer cooperation, enterprises need to formulate reasonable human-computer cooperation specifications. The specification shall specify the objectives, principles, processes and standards of human-computer cooperation to ensure the orderly implementation of human-computer cooperation. At the same time, enterprises should constantly optimize the specifications according to the actual situation, so that human-computer cooperation can better adapt to the needs and development of enterprises. Continuous improvement and optimization of human-computer cooperation mode: with the continuous progress of technology and the needs of enterprise development, human-computer cooperation mode also needs to be continuously improved and optimized. Enterprises should regularly evaluate the effect of human-computer cooperation, collect employees' feedback and suggestions, and make targeted improvement and optimization. At the same time, enterprises should pay attention to the development trend of the industry, actively explore new technology application scenarios, and keep human-computer cooperation in a leading position. Improving the recognition level of human-computer cooperation is the key for enterprises to maintain competitiveness in the digital intelligence era. Enterprises should enhance employees' recognition of human-computer cooperation by enhancing employees' cognition, establishing a trust and transparent working environment, paying attention to employees' emotional needs, formulating reasonable human-computer cooperation norms, and continuously improving and optimizing human-computer cooperation mode, so as to give full play to the advantages of human-computer cooperation and improve the overall performance of enterprises.

Strengthen management innovation and improve work performance. In the era of artificial intelligence, we should pay attention to people-oriented, pay attention to the needs of employees, and enhance the competitiveness of enterprises' talents. Management innovation is one of the key factors to improve work performance. In order to maintain a leading position in the highly competitive market environment, enterprises need to constantly strengthen management innovation and improve work performance. First of all, enterprises should establish a sense of innovation and encourage employees to actively explore new management concepts and methods. Through training, communication and other ways, improve the innovation consciousness and innovation ability of employees, let them dare to try new management methods, so as to promote the management innovation of enterprises. Enterprises should optimize the organizational structure, break the traditional management level and department barriers, and establish a more flexible and efficient management system. Through flattening, networking and other forms of organizational structure, improve the response speed and innovation ability of enterprises, so as to improve work performance. Enterprises should strengthen management by objectives to ensure that employees are clear about their work objectives and expectations. By formulating clear performance indicators and assessment standards, employees can understand the relationship between their work achievements and the strategic objectives of the enterprise, so as to stimulate the enthusiasm and creativity of employees.

Enterprises should implement lean management, pay attention to details and process optimization. By eliminating waste and improving efficiency, we can reduce costs, improve quality and shorten delivery time, so as to enhance the competitiveness of enterprises. Enterprises should introduce agile management to quickly respond to market changes and customer needs. Through the establishment of agile organizational structure, process and team, improve the adaptability and innovation ability of enterprises, so as to maintain a leading position in the highly competitive market environment. Enterprises should strengthen knowledge management and establish knowledge sharing platform and knowledge management system. By collecting, sorting and sharing knowledge resources within the enterprise, we can improve the knowledge level and innovation ability of employees, so as to enhance the core competitiveness of the enterprise. To sum up, strengthening management

innovation is an important way to improve work performance. Enterprises should constantly strengthen management innovation and improve work performance by establishing innovation awareness, optimizing organizational structure, strengthening target management, implementing lean management, introducing agile management and strengthening knowledge management, so as to obtain greater competitive advantage in the competitive market environment.

Comply with the changes of the times and innovate the human resource management mode. Digitalization has changed the way enterprises use talents, and the new working mode has given employees more power. Talent is the first competitiveness, and human resource management mode also needs to be constantly updated and innovated. In order to adapt to the changes of the times, enterprises need to take the following measures to innovate the mode of human resource management: data-driven decision-making: human resource management is gradually changing to data-driven decision-making. By collecting and analyzing employee data, enterprises can better understand the needs, behavior and performance of employees, so as to formulate more accurate human resources policies and measures. For example, through employee performance data, enterprises can develop a more scientific salary system and promotion mechanism to stimulate employees' enthusiasm and creativity. The principle of employee experience first: with the upgrading of consumer demand, employees' expectations of the enterprise are also rising. Enterprises need to focus on employees' work experience with the help of digitalization, improve employees' satisfaction and sense of belonging from the aspects of recruitment, training and performance management, and provide more information and resource support. For example, enterprises can improve employee experience by digitally optimizing the recruitment process, providing high-quality training resources, and creating a good working environment, so as to improve employees' work efficiency and job satisfaction. Talent development is the core: in the rapidly changing market environment, talent is the most important resource of enterprises. Enterprises need to pay attention to the cultivation and development of talents and establish a perfect talent management system. For example, enterprises can promote the development of talents by formulating personal development plans, providing vocational training, and encouraging employees to participate in external training, so as to improve the core competitiveness of enterprises. Enhance the ability of cross-cultural integration: with the acceleration of globalization, enterprises need to have the ability of cross-cultural integration. Respect the diversity of employees, promote communication and understanding between employees with different cultural backgrounds, so as to improve the cohesion and creativity of the team. For example, enterprises can promote cross-cultural integration by organizing cultural exchange activities and providing language training, so as to enhance the international competitiveness of enterprises. Flexible working mode: with the popularity of remote office and flexible working mode, enterprises need to provide more flexible working mode to meet the needs and lifestyle of employees. For example, enterprises can provide more flexible working methods by implementing remote office and flexible working hours, so as to improve the work efficiency and satisfaction of employees. Through the implementation of these measures, enterprises can improve the level of human resource management, enhance the sense of belonging and loyalty of employees, so as to improve the competitiveness of enterprises.

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