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THE FORMAL SECTOR LABOR PERFORMANCE UNDER THE SHADOW OF JOB AUTOMATION

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Abstract: Data on formal sector employment in DKI Jakarta shows a significant and negative relationship between investment and employment. Now, industries are more capital-intensive and prefer to implement automation, IoT robotics, and artificial intelligence. The purpose of this study was to build a model of the relationship between character, work ability, organizational commitment, and organizational culture as they relate to the performance of formal sector employees. The research method was descriptive quantitative. The sampling technique was non-probability sampling. Samples were determined by accidental sampling and were collected from 151 respondents who were formal sector employees of DKI Jakarta. Structural Equation Model applied in data processing. The results of the research indicated that Character factor and workability have a significant direct influence on employee performance on formal sector employees in DKI Jakarta. Only the organizational commitment factor is not significantly correlated directly to performance. Indirect relationship analysis states that organizational culture through organizational commitment correlates with character and workability factors which ultimately have an impact on performance. The implication of this research shows that the creativity factor and environmentally friendly work behavior need to be improved by employees.

Keywords: Formal Sector Employee, Performance, Character, Hardskill, Organisational Commitment, Organisational Culture

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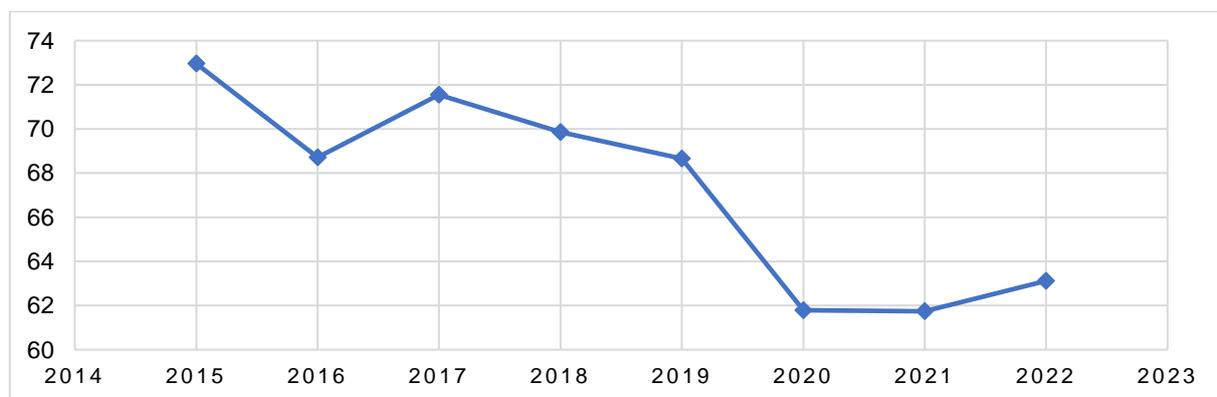
INTRODUCTION

The development of automation technology, IoT robotics, and artificial intelligence will encourage the outsourcing of human labor. The economic justification for these conditions comes from the assumption that the application of these technologies will lead to increased productivity, cost-effectiveness, faster return on investment, and efficiency of operations and production (Budhwar et al., 2022; Wong and Ngin, 1997; Kshetri, 2020), helping businesses navigate the uncertainty and instability of the global economy (Chowdhury et al., 2023), the technology is also more resilient to fatigue and general labor issues. (Abuselidze and Mamaladze, 2021). Its application in the field of human resources also brings positive effects, especially in reducing decision-making bias and accuracy issues (Radonjić et al., 2022) so that labor-related decision-making is conducted more quickly and efficiently (Sangeeta, 2019; Saxena, 2020; Singh and Shaurya, 2021; Zhou et al., 2022). The application of AI cannot be limited, but its effects must be harmonized with the conditions of small-scale businesses (Cappelli et al., 2019). Its alignment is still being debated both academically and practically. Because there is still a lot that needs to be prepared for the industry to be able to implement artificial intelligence technology (Jatobá et al., 2019; Frank et al., 2019; Johansson et al., 2019; Premnath and Christ, 2019; Tambe et al., 2019). Apart from the positive effects, the issue of labor transformation to robots, IoT and artificial intelligence will bring about unemployment (Royal Society and British Academy, 2018; US-EU Trade and Technology Council Inaugural Joint

Statement 2022). Data from the World Economic Forum in 2020 stated that the productive workforce in Indonesia amounted to 153 million, with a work participation rate of 74 percent, where 47.5 percent are workers vulnerable to layoffs. Surveys on businesses show that 94 percent of industry and business owners want job automation (World Economic Forum, 2020). The workforce most impacted by automation is the formal sector's low- and medium-skilled and educated workforce. (Royal Society and British Academy, 2018). For developing countries with dense populations, employing humans is cheaper than using machines and robots. This technology is inefficient, creates economic inequality, and exacerbates social imbalances due to unemployment (Hadi-Adha et al., 2020; Innocenti and Golin, 2022).

Human capacity can be developed through work character and skills. Investment in the second pillar shows the need for the role of work institutions to have an organizational culture that guarantees dignity, freedom, security, and equality for workers. The collaboration of the two pillars is expected to produce work results that increase profits for all business stakeholders. The employees must be viewed as a company assets (Deloitte, 2019). These assumptions are needed to improve employee performance on an ongoing basis (Andriyanty et al., 2022a; Asrarudin, 2021; Rambe et al., 2020; Setyawan, 2021a).

Based on the data, the percentage of workers involved in the formal sector compared to the total number of workers in DKI Jakarta indicated a declining trend. Detailed data regarding this can be seen in the figure 1.



Source: BPS RI (2023)

Figure 1. The Progression of the Percentage of Formal Sector Labor in DKI Jakarta

The decrease in the number must be followed by a significant increase in performance. The achievement of the goals of formal sector organizations is highly dependent on increasing the productivity and performance of every person involved in it (Andriyanty et al., 2022b; Asrarudin, 2021). Currently, in relation to the performance of formal sector employees in DKI Jakarta, the conditions of the Covid-19 pandemic, a new work paradigm related to the role of the technology and work-from-home management should be developed (Andriyanty et al., 2021).

Human development as a resource is essential (Andriyanty et al., 2020; Rambey et al., 2021a). The workforce can adopt this paradigm by adjusting character, work skills, and commitment through an organizational culture that aligns with the values that the workforce believes in itself. Alignment between character, hard skill, and commitment of each individual with different organizational cultures is needed for high performance. The results of research on formal sector labor in DKI Jakarta revealed a significant relationship between investment and negative labor employment. This condition occurred due to the fact that investments made in DKI Jakarta were more capital-intensive than labor-intensive. Sakernas data for 2021 stated that three out of five workers in DKI Jakarta were formal sector workers with specialized skills (BPS DKI Jakarta, 2021).

Businesses must implement an innovation-focused organizational culture. This adjustment will drive the evolution of competencies for the organization, its employees, and collectively (Boucher et al., 2006). Organizations should implement positive change management (Rambey et al., 2021b). Research about organizational culture in the Greek public sector suggested that a good organizational culture was an important factor in shaping work motivation. Changing the organizational culture for the better also promoted employee motivation without the necessity of additional financial costs (Panagiotis et al., 2014). The novelty aspect of this research directs the analysis of the effects of job automation on human characteristics, workability, organizational commitment, and organizational culture on their performance. In the future, humans must be able to work alongside or even be replaced by technology. This study is needed in Indonesia, where the workforce tends to

be labor-intensive rather than the capital-intensive. The benefit of the research is to expand the insight for every organization to combine automation with humans in harmony. Therefore, based on the above discussion, the purposes of this research are, to analyze the relationship between character and the performance of formal sector employees in DKI Jakarta. To analyze the correlation between hardskill and the performance of formal sector employees in DKI Jakarta. To analyze the correlation between the organizational commitment to the performance of formal sector employees in DKI Jakarta. To analyze the correlation between organizational culture and the performance of formal sector employees in DKI Jakarta. To analyze the indirect effect of organizational commitment to performance through employee hard skills. To analyze the organizational culture through organizational commitment through character correlates with the performance of formal sector employees. To analyze the organizational culture through organizational commitment through hardkills that correlate with the performance of formal sector employees.

LITERATURE REVIEW

The Automation and Job Performance

Many studies have examined the effects of job automation on employment. The European automotive and garment industries showed that automation is not yet replacing human labor. Still, jobs need to be modified with effects on task complementarity and skill polarization among workers. The effects of automation will be more threatening to the female workforce due to limited participation in manufacturing skills manufacturing (Anzolin, 2021). Analysis by ILO in the ASEAN region shows that three out of five jobs will be at risk due to automation, as technology will rapidly transform manufacturing and service industries. Another finding is that automation affects women, less educated workers, and low-wage jobs most (International Labour Organization 2016). A study in the Norway states that almost forty percent of workers feel concerned that smart machines will replace their jobs. It depresses job satisfaction among them. The negative effect is particularly felt by employees who perform routine and low-skilled tasks. This research also points to the need for future research into the impact of smart work devi-

ces on worker well-being at the individual level (Schwabe and Castellacci, 2020). Performance is conceptualized as an individual's contribution to achieving company or organizational goals (Schmitt and Highhouse, 2013).

Organization Commitment

The potential success of an organization will depend on the commitment of its entire workforce. This commitment consists of affective, continuance, and normative. The employee commitment is a well-constructed belief in the goals and values of the organization, a willingness to make considerable efforts on behalf of the company/organization, and a strong desire to remain a member of the organization. Employees with high employee commitment will be better at their jobs, spend less time away, and are less likely to leave the organization. Employee commitment is based on an individual's relative ability and involvement in a particular organization. It shows people's attitudes toward the values and goals of the organization. And in a changing economy, information technology is becoming a tool for the businesses to survive. Companies must be able to encourage the employees to commit that technology is not a threat but an opportunity to improve their performance. (Bhargava et al., 2021). An aspect that can minimize employee insecurity due to robots at work is to increase positive employee self-affirmation (Yam et al., 2022). Research conducted on employees of food, beverage, and cigarette companies in the country shows that automation supported by employee capabilities will improve performance and reduce production costs (Amadi and Konya, 2020).

Corporate Culture

Automation, robotics, IoT, and artificial intelligence generate anxiety in the employees about their existence at work. This anxiety harms a sense of job insecurity that ultimately suppresses employee performance (Lingmont and Alexiou, 2020a). The development of robotic technology forces the organizations to manage changes accurately and not threaten their operations' stability (Turja et al., 2022). On this basis, implementing change management must become a corporate culture. Organizational culture includes all shared values, beliefs, and traditions among individuals in the organization. This culture establishes norms of appropriate

behavior in the workplace for what is right to do or wrong. Organizational culture defines the roles and expectations that employees and management have of each other (Aamodt, 2010). In forming a good technology adoption culture among organizational resources, it is necessary to intervene between the psychological side of employees and the organizational side (Roberts et al., 2021).

HYPOTHESIS DEVELOPMENT

The ILO 2022 report on employment trends and social conditions in the Asia Pacific is the region with high economic growth but a declining labor market. It is due to capital-intensive investment with a faster transition to the digital technology spurred by the COVID-19 pandemic between high-skilled and low-skilled workers. Although this area is supported by a high labor participation rate, it is not followed by labor utilization (International Labor Organization 2022). The solution required an investment strategy for an agile and more cohesive workforce. The strategy must work on both sides. The organization must be able to transition jobs with empathy and in line with the company culture. At the same time, employees undergo training to enhance new job skills that drive up performance (World Economic Forum 2020).

The antecedents of employee performance are the individual's predisposition to the job, job satisfaction, job opportunities, values compatible with the organization, fairness, co-workers, stressors, and the job itself. These conditions lead to the congruence of individual characteristics such as affectivity, self-esteem, self-worth, self-efficacy, internal locus of control, emotional stability, openness, conscientiousness, extraversion, agreeableness, and work stability. All have a positive effect on the job performance (Aamodt, 2010). The most significant character constructs were attitudes related to the friendliness toward fellow employees and a positive attitude toward daily work (Hanafi, 2016). In the Indonesian energy sector, individual characteristics also have a positive effect on performance (Mugizi et al., 2015). In the education business sector, an employee's character is a key predictor of the work commitment (Mugizi et al., 2015). In the contracting business sector, an individual character has a significant effect on job satisfaction, and job satisfaction also has a significant impact on employee performance (Wahyunanti et

al., 2018). In the interior industry sector, it has been shown that performance is influenced by the character of the employees (Senen et al., 2018). In the trade sector, character plays an important role in salesperson's performance (Herjanto and Franklin, 2019). Character factors that affect performance are religious beliefs, the ability to accept personal responsibility for the conditions that happened to him, and the need for achievement (Boshoff and Arnolds, 1995). Research of 389 blue-collar employees on their integrity towards workplace safety enhances the employee performance (Peker dkk., 2022), while Liu's study showed that the honesty is the cornerstone of ethics and morals, including how the economic behavior of production operates (Liu et al., 2022). One of the factors that influence performance, including job satisfaction, is creativity (El-Kassar et al., 2022). Specifically, it is explained that creativity, combined with skills, can reduce workplace stress (Çekmecelioglu and Günsel, 2011; Bousinakis and Halkos, 2021). Research on 455 workers in Vietnam revealed that feedback on openness to positive criticism in the workplace received by employees has a role in performance through moderation of psychological ownership based on work (Thu-Trang, 2022). Similarly, it is stated that employee performance will be improved if the results of work evaluation are based on targets and consequences of work results. Thus, employees will appreciate the results of their work more (Chompukum, 2012). The following hypothesis is proposed based on the discussion above:

H1: It is hypothesized that employee character is directly correlated with performance.

Work abilities can be both hard skills and soft skills. AI technology will generally reduce the industry's need for basic cognitive skills such as data entry, processing, scheduling, and monitoring (Jaiswal et al., 2022). Until now, intuitive intelligence, empathy, sensitivity to culture, and changes in surrounding conditions have not been able to be implemented by technology as yet (Diyah and Arifah, 2022). Humans can envision, anticipate, sense, and assess changing situations, allowing them to move from short-term to long-term problems (Harvard Business Review, 2021). It is the difference between human labor and machine labor.

In this research, workability is more focused on hard skills, especially the ability to apply tech-

nology to work. The World Economic Forum stated that in Indonesia, the skill sets of the workforce that are in high demand by industry are: 1) creativity, originality, and initiative; 2) ability to solve complex problems; 3) active learning and continuous learning strategies, 4) emotional control skills, 5) analytical thinking and innovation, etc. (World Economic Forum, 2020). US research showed that factory operators and operational workers were more impacted by automation than design and development workers (Lawson, 2010).

Workability supported by the work facilities will support employee performance (Andriyanty et al., 2021; Anggraeni and Andriyanty, 2021). The results of Safitri and Andriyanty's research in 2022 stated that for the financial sector employees, hard skills have a direct relationship and indirect effect through moderation of organizational commitment on performance (Intan-Safitri and Andriyanty, 2022). Similar research conducted on front liners in the hospitality sector in DKI Jakarta also indicated that hard skills significantly influence performance (Anggraeni and Andriyanty, 2021). Meanwhile, in the porcelain household appliances sector, the hard skills will affect the ability to innovate technically (Hendarman and Tjakratmadja, 2012a). Similar results were reported by research analyzing the performance of the government employees in Maluku (Renyut et al., 2017a). Na's research suggested that on-the-job training will affect the company's innovativeness (Na, 2021). A study of 420 employees in the public service sector showed that a clear job description can support employee performance (Ahmed et al., 2022; Sukardi and Yuliadi, 2020). Environmentally friendly behavior also has a significant influence on employee performance (Ahmed et al., 2023). Hence, the company must nurture employees with specific hard skills (Syafri et al., 2021). The ability to environmentally friendly behavior was also significant in public service organizations in Cambodia (Ly, 2023) and the hospitality industry sector (Kim et al., 2019). Among the various factors that affect an employee's hard skills, systematic factors at work shown by working accurately, planning, and organizing with good administration are stated to influence performance (Koopmans et al., 2011). Related to the changing labor market due to exposure to technology, one of the abilities that affect work productivity is managing technical informa-

tion and adopting the technological developments (Koopmans et al., 2011; Murad and Amer, 2015). Ultimately, the ability of employees to use technology will improve company performance (Ryu and Lee, 2018). The second hypothesis proposed:

H2: It is hypothesized that hard skills have a direct correlation to performance.

Organizational commitment is an important issue in employment concerning the effects of directly and indirectly improving employee performance (Rambe et al., 2020; Setyawan, 2021b) and indirectly. Indirectly, the commitment was mediated by the employee's learning process and the work team's learning process (Atatsi et al., 2019). The company's initiatives will significantly influence the integration of technology adoption into human resources (Zahoor et al., 2022a). In the context of organizational commitment, it will affect performance (Made et al., 2021; Taruna and Indra, 2017) and the relationship was a direct relationship (Gruman and Saks, 2011). An analysis of 100 Coca-Cola employees in Nigeria revealed a gener-

ally high level of the commitment to the company. The relationship was quite high (Irefin and Mechanic, 2014). Research conducted in Pakistan indicated that affective and normative commitment positively and significantly influence employee performance (Parveen, 2019). A study in Serbia showed that affective commitment and normative commitment have a significant effect on organizational productivity (Đorđević et al., 2020). Organizational commitment will influence employee performance. The factors influencing this commitment were the employees' skills, efforts, and natures and the organization (Suharto et al., 2019). The next hypotheses are proposed:

H3: It is hypothesized that organizational commitment has a correlation directly with performance.

H4: It is hypothesized that organizational commitment has an indirect correlation to performance through employee character.

H5: It is hypothesized that organizational commitment has an indirect correlation to performance through employee hard skills.

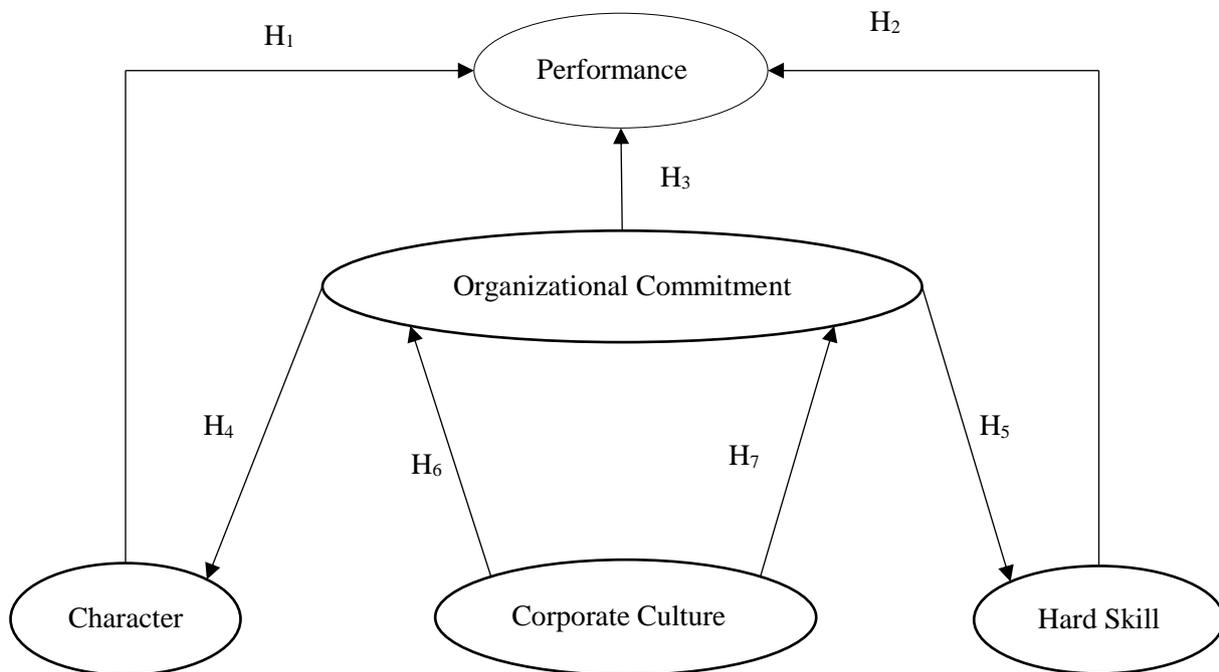


Figure 2. Proposed Theoretical Research Model

Business entities will always evolve due to consumer changes and social and technological constraints. This evolution must be responded to by implementing an innovation-focused organizational culture. A good organizational culture will drive the development of competency improvement for the company, the employees, and collectively (Boucher et al., 2006; Atatsi et al., 2019; Rusu et al., 2016). Research on organizational culture in the public sector in Greece revealed that a good organizational culture was an important factor in shaping work motivation. Changes in the organizational culture toward a better direction also encourage employee performance without the need for additional financial costs (Panagiotis et al., 2014). A study of employees of forex companies in the United Arab Emirates showed that organizational culture strongly influences performance (Cherian et al., 2021). A study conducted in Newspaper Company in Malaysia showed that an organizational culture that values work achievement encourages employee performance (Sundararajan et al., 2020). In the healthcare industry, organizational culture has a role in performance through the mediation of good leadership and financial management (Widyawati et al., 2021). In the analysis of port employee performance in Tarakan Kalimantan, it was shown that organizational culture has a direct influence on performance. And the work environments indirect influence on the performance (Ekaningsih et al., 2020). An innovation-oriented corporate culture will improve their financial status (Bataneh et al., 2023; Buck et al., 2023; Cascio et al., 2010). However, a culture of innovation that accepts automation should encourage companies to take risks by retaining employees as the primary factor in controlling technologies that increase production while preserving jobs for the community (Makarius et al., 2020; Margherita and Braccini, 2021; Mikalef et al., 2023; Di Vaio et al., 2020). A corporate culture that promotes automation but is less authoritarian tends to result in lower job satisfaction (Lingmont and Alexiou, 2020b). These turbulent conditions encourage companies to have a culture to build the relational working relationships. There is social interaction and teamwork, and communication and empathy are shared by all employees (Farrow, 2022). The following hypotheses are proposed:

H6: Organizational culture through organizational

commitment through the character correlates with the performance of formal sector employees.

H7: Organizational culture through organizational commitment through hard skills will correlate with the performance of formal sector employees.

METHOD

The research was a quantitative study. The research was conducted from March 2022 to January 2023. The origin population was unknown, so the respondents were determined by non-probability sampling, where respondents were selected intentionally. The target respondents who filled out the questionnaire were 200 employees across various DKI Jakarta regions and valid questionnaires that can be processed amount to 151. The questionnaire captured information about the exogenous latent construct on a five-point Linkert scale ranging from strongly agree to disagree strongly, which was analyzed with the PLS-SEM software. The exogenous latent constructs consist of 5 variables: character, hardskill, organizational commitment, corporate culture, and performance. The following paragraphs explain the operational definition of each variable.

Employee performance is a framework of employee behavior to contribute to company goals due to the quality and quantity of work employees achieve. Performance observation parameters can be measured on work results, achievement of work targets, timeliness, discipline, cooperation, initiative, behavior, commitment, skills, and knowledge (Lay et al., 2020). Employee character is a combination of individual differences that will significantly affect the management of human relations and their social demeanor (Goldberg, 1990), the relationship between individual employees, and the nature and pattern of the work itself (Hackman and Oldham, 1976), and individual attitudes regarding the technology administration (Valaei et al., 2017). One of the experts who examined the relationship of human psychological factors related to personality to human response-ability was Raymond B. Catell and characterized as the big five. The taxonomy of the five elements is rigor, agreement, dependability, emotional stability, and the culture (Goldberg, 1990). The explanation above states that an employee's personality determines their

hard skills. It proxied hard skills as general workability, sustainability, and technological skills (Straub et al., 2023). Hard skill is a person's ability to gain knowledge academically and technically to perform optimally (Widiastuti et al., 2015). Organizational culture is an organization's shared values and is different from other organizations. Organizational culture will reflect its members' shared values and beliefs that develop over time. Organizational culture affects the business operations of a company/organization because it permeates the work behavior of its employees (Tanjojo et al., 2021) A solid organizational culture is a key generator of the employee motivation and commitment (Indarti, 2011) A company can stimulate and encourage a corporate culture on the learning dimen-

sion by providing resources conducive to continuous learning while enhancing the relevant skills of employees (Zahoor et al., 2022b; Lingmont and Alexiou, 2020). Employee organizational commitment can be defined as an employee's loyalty to the organization, willingness to work on behalf of the organization, the degree of congruence of objectives and individual values between the employee and the organization, and the employee's intention to remain with the organization. Organizational commitment is understood as the psychological attachment that a person perceives toward the organization and is a reflection of the extent to which the individual internalizes or adopts the characteristics or perspectives of the organization (Wua et al., 2022).

RESULTS

Respondent Characteristics

Table 1. Descriptive Data of Respondents

Gender		Frequency
Valid	Male	86
	Female	65
	Total	151
Age		
Valid	<=20	2
	21-40	133
	41-60	16
	Total	151
Working experience		
Valid	01-10	135
	11-20	12
	21-30	4
	Total	151
Education Level		
Valid	College Degree	3
	Bachelor	73
	Master	14
	PhD	1
	Highschool & Equivalent	60
	Total	151

Table 2. Descriptive Data of Respondents

Position		Frequency
Valid	Upper Management	2
	Supervisor	136
	Middle Management	13
	Total	151
Salary		
	Valid	
	< Rp.10.000.000 per month	139
	> Rp.50.000.000 per month	3
	Rp.10.000.000 -Rp.20.000.000 per month	6
	Rp.21.000.000- Rp.30.000.000 per month	2
	Rp.31.000.000 -Rp.40.000.000 per month	1
Total	151	
Business Type		
	Valid	
	State-Owned Enterprises	3
	Fintech	34
	Security	1
	Public Agency	24
	NGO	2
	Banking	4
	Service Company	11
	Manufaktur Company	12
	Trading Company	11
	Oil & Gas Company	2
	Retail & Marketplace	24
	Property	13
Education Institution	10	
Total	151	

Hypothesis Testing Result

The path analysis indicated different decision results between variables. Hypothesis 1 and 2, where each p-value was 0.000 (<0.005), revealed the influence of the exogenous latent on the endogenous latent. The third hypothesis should be rejected since the p-value was 0.730 (>0.005). It im-

plied that organizational commitment has an insignificant correlation with performance. Detailed data can be seen in the table 3. The results of the indirect test analysis revealed that all relationships analyzed showed significant values. It concludes based on a p-value of 0.000-0.001 (<0.005). The data can be seen in the table 4.

Table 3. The Results of Testing Path Analysis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
Character -> Performance	0.353	0.352	0.084	4.202	0.000	Significant
Hardskills -> Performance	0.458	0.457	0.114	4.018	0.000	Significant
Organizational Commitment -> Performance	0.031	0.032	0.089	0.346	0.730	Insignificant
Corporate Culture -> Organizational Commitment	0.813	0.812	0.035	23.429	0.000	Significant
Organizational Commitment -> Character	0.713	0.712	0.108	6.588	0.000	Significant
Organizational Commitment -> Hardskills	0.653	0.653	0.088	7.400	0.000	Significant

Table 4. The Test Results of the Analysis of Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
Organizational Commitment -> Character -> Performance	0.252	0.250	0.069	3.677	0.000	Significant
Organizational Commitment -> Hardskills -> Performance	0.299	0.301	0.093	3.230	0.001	Significant
Corporate Culture -> Organizational Commitment -> Character -> Performance	0.205	0.204	0.058	3.563	0.000	Significant
Corporate Culture -> Organizational Commitment -> Hardskills -> Performance	0.243	0.244	0.075	3.230	0.001	Significant

DISCUSSION

The Effect of Employee Character on Performance

The analysis shows that the first hypothesis was accepted. Employees' character significantly affected their performance, and the most influencing factor was creativity. One of the different factors between human labor and AI labor today is creativity. Human workers have the creative ability to recognize the current state of a job and identify the feelings of other parties in the business. This ability is the main factor that employees must develop to maintain their job existence. Companies themselves must remain focused on developing

their employees' creativity and innovation to grow their business in Industry 4.0. (Valaei et al., 2017b; Balková et al., 2022; Ibrahim et al., 2018). Efforts are made to provide the courses or seminars on generating creative thinking and provide suggestions on how to utilize the employees' creativity in the company (González-González and García-Almeida, 2021). The next factors are openness to criticism, integrity, and honesty. The employee characteristics involving openness, conscientiousness, extraversion, and neuroticism have a significant influence on the workflow experience, which, in turn, positively affects the employee or organizational commitment and the consumer-oriented be-

havior (Kim et al., 2019).

The Effect of Hardskills on Performance

Employee hard skills also significantly influenced performance, where the second hypothesis was also accepted. The factor that has the highest correlation is eco-friendly working ability. The results demonstrated that the implementation of green human resources provides benefits both for individual employees and for the company. Specifically, each employee has green work outcomes. Meanwhile, at the organizational level, green human resources management benefits by creating an environmentally friendly organizational culture and work climate, increasing the efficiency of various resources, forming a positive corporate image, and improving economic and environmental performance (Suharti and Sugiarto, 2020). Eco-friendly working ability behavior is empirically proven to increase company productivity (Kilu and Sanda, 2020). This capability should be developed, especially in family companies focusing only on short-term profits (Gunawan and Dhewanto, 2012). The other factors that affected hard skills were the ability to work systematically, good work skills, on-the-job training, information technology skills, the ability to adopt new technology, and a clear job description. The managerial skills required will be closely related to employees' hard and soft skills. The higher the hard and soft skills, the higher the manager's innovation level (Maduko and Puche, 2020). Research on employees of porcelain-based household appliances suggested that hard skills influence the non-technical workability (Hendarman and Tjakraatmadja, 2012b).

The Effect of Organizational Commitment on Performance

The third hypothesis based on path analysis revealed that organizational commitment has an insignificant effect on performance. This condition was consistent with research on 244 employee respondents at the Maluku governor's office in Indonesia. This research found that organizational commitment has a positive effect on performance but is not significant. In general, employee commitment has not yet been oriented toward achieving organizational goals, the quality of work set, the quantity of work targeted, and violations of timeliness of work (Renyut et al., 2017b). Some stu-

dies have also resulted in recommendations that there was no significant effect of organizational commitment on employee performance (Ariyanto, 2020; Darman et al., 2017; Eliyana et al., 2019; Harwika, 2016; Sulistiono et al., 2020). The study conducted on 210 employees in the northwest zone of Nigeria suggested that the normative commitment has an insignificant effect on employee performance. At the same time, affective and continuance commitments significantly affect employee performance (Bello-Jakada et al., 2019).

The Indirect Effect of Organizational Commitment to Performance Mediated by Employee Character

The fourth hypothesis was accepted, meaning that organizational commitment through character significantly affects performance. The fifth hypothesis asserted that the organizational commitment through employee hard skills significantly affects the performance. The factor that has the greatest correlation to organizational commitment is employees' long-term commitment. Research conducted on 102 employees of four-star hotels in Beijing indicated that employee trust and satisfaction in the hospitality sector are important antecedents of the three dimensions of the organizational commitment. Affective, normative, and continuance commitments have clear and varied effects on employees' attitudinal and behavioral loyalty. Then, employees' loyal attitudes significantly drive behavioral loyalty (Yao et al., 2019). Other factors in order were the desire to remain in the current company, the desire to achieve the company's goals, one's desire, and a sense of pride in the company.

The Indirect Effect on Organizational Commitment to the Performance through Hardskills

The fifth hypothesis is accepted because the p-value is 0.001 (<0.005). It can be concluded that organizational culture mediated by organizational commitment and hard skills has a significant effect on performance. Organizational support for employee learning orientation that supports technology-related hard skills and organizational commitment can enhance the impact of technological innovation on employee psychological well-being. The circumstances will certainly encourage performance (Wua et al., 2022). The relationship be-

tween organizational commitment and performance is reflected in an employee's identification with the company in terms of the company's culture of investing in well-being, which connects the employee's future to the company's success. Committed employees are willing to receive correct and timely feedback on their productivity to know the strong and weak sides of their ability to improve performance (Abrahamyan et al., 2014).

The Effect of Organizational Culture through Organizational Commitment and Character on Performance

The sixth hypothesis was accepted, where organizational culture through organizational commitment and employee character has a significant effect on employee performance. Research conducted on 100 employees of electrical companies in Malaysia showed that organizations that support employee creativity will lead to positive perceptions. Organizations that allow their employees to be creative at work and are willing to provide the necessary facilities, infrastructure, and training will result in creative thinking and actions among their employees (Ibrahim et al., 2016). One manifestation of nurturing employee creativity is to empower the employees with a wide range of autonomy to organize their work (Çekmecelioglu and Günsel, 2011).

The Effect of Organisational Culture through Organisational Commitment through Hard-skills to the Performance of Formal Sector Employees

The seventh hypothesis is that organizational culture through organizational commitment and employee hard skills has a significant effect on employee performance. The factor that most influences corporate culture is the compatibility of corporate culture with employees' values. The next factors were the culture of innovation, cooperation, and the corporate culture that encourages risk-taking related to business development. Studies conducted on the public organizations and private companies in Qatar related to green human resources show that green organizational culture mediates the relationship between environmental concerns and green employee behavior (Al-Swidi et al., 2021; Masri and Jaaron, 2017).

This study has established and tested a mo-

del to evaluate individual employee factors and organizational factors that affect the performance of the formal sector employee in Jakarta, using SEM methodology. The results showed a strong relationship between those two factors above and employee performance. The main factors to be pursued are those that distinguish humans from machines. The human side is still difficult to replace with smart machines and automation. Among them is to introduce creativity and environmentally friendly workability behaviors that are built from employees' character and hard skills.

IMPLICATIONS

The theoretical implications of the results of this study show that human resource management today must harmonize humans with machines. In this transition period, employees should focus on creativity, sensitivity, and pro-environmental work behavior because these factors differentiate humans and machines.

RECOMMENDATIONS

Future research should include socioeconomic sustainability by analyzing the contribution of job automation that may substitute human job roles. The main limitation of this study was the sample size. Ideally, this study would involve a larger population. The authors declare no competing financial, public, or institutional interests.

CONCLUSIONS

In the shadows of job automation for formal sector workers, it is necessary to study human performance. The influencing factors are vast, but in this study, the factors analyzed were related to industrial psychology. The conclusions that can be drawn are as follows: First, the correlation between character and the performance of formal sector employees in DKI Jakarta was significant. Second, there is a significant correlation between hardskill work and the performance of formal sector employees in DKI Jakarta. Third, the correlation between the organizational commitment and the performance of formal sector employees in DKI Jakarta was insignificant. Fourth, the correlation between organizational culture and the performance of formal sector employees in DKI Jakarta was also significant. Fifth, there was a significant indirect effect of organizational commitment to performance

through hardskills. Sixth, there was a significant indirect effect of organizational culture through organizational commitment through character correlated with the performance of formal sector employees. Seventh, the organisational culture through organisational commitment through hardkills that correlate significantly with the performance of formal sector employees. An interesting research finding related to the character of an employee is creativity. The factor associated with the hard skill variable is eco-friendly working ability. The human ability to respond swiftly to changing circumstances has not yet been replicated by technology.

REFERENCES

- Aamodt, Michael G. 2010. *Industrial/Organizational Psychology: An Applied Approach*. 6th ed. California: Wadsworth Cengage Learning.
- Aamodt, Michael G. 2010. *Industrial/Organizational Psychology: An Applied Approach*. Vol. 6. Wadsworth.
- Abrahamyan, L., Mirzoyan, T., and Lopez, F. 2014. *An Investigation into the Relationship between the Commitment of Employees and Their Performance A Study within the Information and Communications Technology Industry*. Blekinge Institute of Technology, Karlskrona, Sweden.
- Abuselidze, G. and Mamaladze, L. 2021. The Impact of Artificial Intelligence on Employment before and during Pandemic: A Comparative Analysis. *Journal of Physics: Conference Series*, Vol. 1840. IOP Publishing Ltd.
- Ahmed, R. R., Akbar, W., Aijaz, M., Channar, Z. A., Ahmed, F., and Parmar, V. 2023. The Role of Green Innovation on Environmental and Organizational Performance: Moderation of Human Resource Practices and Management Commitment. *Heliyon*, 9(1). DOI: 10.1016/j.heliyon.2022.e12679.
- Ahmed, S., Mubarak, S., Rawas, A. L., and Jantan, D. 2022. The Effect of Job Description on Employee Performance of Omani Public Sector: Mediating Role of Organizational Justice. *Technium Business and Management*, 2(3): pp. 159–75.
- Al-Swidi, A. K., Gelaidan, H., and Saleh, R. M. 2021. The Joint Impact of Green Human Resource Management, Leadership and Organizational Culture on Employees' Green Behaviour and Organisational Environmental Performance. *Journal of Cleaner Production*, 316. DOI: 10.1016/j.jclepro.2021.128112.
- Amadi, Ovunda Gideon and Konya, K. T. 2020. Technological Advancement and Employee Commitment of Foods, Beverages and Tobacco Companies in Port Harcourt, Nigeria. *American Journal of Humanities and Social Sciences Research*, 4(8), pp. 338–48.
- Andriyanty, R., Haritsah, A. F., and Rambe, D. 2022. Peran Pendidikan terhadap Produktivitas Kerja Pegawai Pengelola Ruang Publik Terpadu Ramah Anak (RPTRA) Kelurahan Srengseng Sawah Jakarta Selatan melalui Moderasi Sikap Melayani Masyarakat. *Mega Aktiva: Jurnal Ekonomi dan Manajemen*, 11(2), pp. 2086–1974. DOI: 10.32833/majem.v10i2.265.
- Andriyanty, R., Komalasari, F., and Rambe, D. 2021. The Effect of Work from Home on Corporate Culture Mediated by Motivation, Work Behavior, and Performance. *Journal of Applied Management (JAM)*, 19(3), pp. 522–34. DOI: 10.21776/ub.jam.2021.019.
- Andriyanty, R., Yunaz, H., Wahab, D., Rambey, T., and Masnang, A. 2020. Marketing Management Skill of Mangosteen Farmer. *International Journal of Innovative Science and Research Technology*, 5(8).
- Anggraeni, Erika and Andriyanty, Remy. 2021. Analisis Faktor yang Mempengaruhi WFH Pegawai Direktorat Kursus dan Pelatihan Direktorat Jenderal Pendidikan Vokasi Kementerian Pendidikan dan Kebudayaan RI Jakarta. *Mediastima*, 27(2), pp. 96–109. DOI: <https://doi.org/10.55122/mediastima.v27i2.296>.
- Anzolin, Guendalina. 2021. *Automation and Its Employment Effects: A Literature Review of Automotive and Garment Sectors*. Spain.
- Ariyanto, Eny. 2020. Analysis of the Relationship between Organizational Commitment, Job Satisfaction, and Employee Job Performance at PT Star Capital Jakarta. *IOSR Journal of Business and Management (IOSR-JBM)*, 22(7), pp. 21–30. DOI: 10.9790/487X-2207012130.

- Asrarudin. 2021. Dampak Kecerdasan Emosional dan Modal Intelektual pada Produktivitas Belajar Online/Daring pada Masa Pandemi Covid-19 Mahasiswa Institut Bisnis dan Informatika Kosgoro 1957. *Mediastima*, 27 (1), pp. 1–17. DOI: <https://doi.org/10.55122/mediastima.v27i1.209>.
- Atatsi, E. A., Stoffers, J., and Kil, A. 2019. Factors Affecting Employee Performance: A Systematic Literature Review. *Journal of Advances in Management Research*, 16(3), pp. 329–51.
- Balková, M., Lejsková, P., and Ližbetinová, L. 2022. The Values Supporting the Creativity of Employees. *Frontiers in Psychology*, 12. DOI: [10.3389/fpsyg.2021.805153](https://doi.org/10.3389/fpsyg.2021.805153).
- Bataineh, M. J., Sánchez-Sellero, P., and Ayad, F. 2023. The Role of Organizational Innovation in the Development of Green Innovations in Spanish Firms. *European Management Journal*. DOI: [10.1016/j.emj.2023.01.006](https://doi.org/10.1016/j.emj.2023.01.006).
- Bello-Jakada, M., Jakada, A., Hussein, M. A., Kurawa, N. S., and Rabi, A. 2019. Effect of Affective, Continuance, and Normative Commitments on Job Performance of Employees of National Identity Management Commission, Northwest Zone, Nigeria. *Lapai International Journal of Management and Social Sciences: A Publication of the Faculty of Management and Social Sciences*, 11 (2).
- Bhargava, A., Bester, M., and Bolton, L. 2021. Employees' Perceptions of the Implementation of Robotics, Artificial Intelligence, and Automation (RAIA) on Job Satisfaction, Job Security, and Employability. *Journal of Technology in Behavioral Science*, 6(1), pp. 106–13. DOI: [10.1007/s41347-020-00153-8](https://doi.org/10.1007/s41347-020-00153-8).
- Boshoff, Christo and Arnolds, Cecil. 1995. Some Antecedents of Employee Commitment and Their Influence on Job Performance: A Multi Foci Study. *South African Journal of Business Management*, 26(4), pp. 125–35.
- Boucher, X., Crestani, D., and Girard, M. A. 2006. Research Trends for Decision Aids for Change Management. *IFAC Proceedings Volumes (IFAC-PapersOnline)*, Vol. 9, pp. 207–12, IFAC Secretariat.
- Bousinakis, Dimitrios and Halkos, George. 2021. Creativity as the Hidden Development Factor for Organizations and Employees. *Economic Analysis and Policy*, 71, pp. 645–59. DOI: [10.1016/j.eap.2021.07.003](https://doi.org/10.1016/j.eap.2021.07.003).
- Buck, C., Clarke, J., de Oliveira, R. T., Desouza, K. C., and Maroufkhani, P. 2023. Digital Transformation in Asset-Intensive Organizations: The Light and the Dark Side. *Journal of Innovation and Knowledge*, 8(2). DOI: [10.1016/j.jik.2023.100335](https://doi.org/10.1016/j.jik.2023.100335).
- Budhwar, P., Ashish-Malik, M. T., De Silva, T., and Thevisuthan, P. 2022. Artificial Intelligence—Challenges and Opportunities for International HRM: A Review and Research Agenda. *International Journal of Human Resource Management*, 33(6), pp. 1065–97.
- Cappelli, P., Tambe, P., and Yakubovich, V. 2019. Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. *Social Science Research Network*, April, pp. 1–34.
- Cascio, R., Mariadoss, B. J., and Mouri, N. 2010. The Impact of Management Commitment Alignment on Salespersons' Adoption of Sales Force Automation Technologies: An Empirical Investigation. *Industrial Marketing Management*, 39(7), pp. 1088–96. DOI: [10.1016/j.indmarman.2009.12.010](https://doi.org/10.1016/j.indmarman.2009.12.010).
- Çekmecelioglu, Hülya Gündüz and Günsel, Ayşe. 2011. Promoting Creativity among Employees of Mature Industries: The Effects of Autonomy and Role Stress on Creative Behaviors and Job Performance. *Procedia – Social and Behavioral Sciences*, Vol. 24, pp. 889–95.
- Cherian, J., Gaikar, V., Paul, R., and Pech, R. 2021. Corporate Culture and Its Impact on Employees' Attitude, Performance, Productivity, and Behavior: An Investigative Analysis from Selected Organizations of the United Arab Emirates (UAE). *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), pp. 1–28. DOI: [10.3390/joitmc7010045](https://doi.org/10.3390/joitmc7010045).
- Chompukum, Pachsiry. 2012. Performance Management Effectiveness in Thai Banking Industry: A Look From Performers and A Role of Interactional Justice. *Journal of International Business and Cultural Studies*, pp.

- 1–22.
- Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., and Truong, L. 2023. Unlocking the Value of Artificial Intelligence in Human Resource Management through AI Capability Framework. *Human Resource Management Review*, 33(1). DOI: 10.1016/j.hrmr.2022.100899.
- Darman, D. H., Taba, M. I., and Yusuf, R. M. 2017. The Effect of Personality, Ability, Organizational Support, Job Satisfaction and Organizational Commitment towards Lecturer Performance of Private University in Gorontalo. *Scientific Research Journal (SCIRJ)*, V(VI), pp. 61–70.
- Deloitte. 2019. Future of Work in Financial Services Article Series. *Deloitte*, pp. 1–20.
- Di Vaio, A., Palladino, R., Hassan, R., and Escobar, O. 2020. Artificial Intelligence and Business Models in the Sustainable Development Goals Perspective: A Systematic Literature Review. *Journal of Business Research*, 121, pp. 283–314. DOI: 10.1016/j.jbusres.2020.08.019.
- Diyah, I. and Arifah, C. 2022. Job Replacement Artificial Intelligence di Industri Jasa: Tinjauan Pustaka Sistematis. *Jurnal Ilmu Manajemen*, 10(3), pp. 911–29.
- Đorđević, B., Ivanović-Đukić, M., Lepojević, V., and Milanović, S. 2020. The Impact of Employees' Commitment on Organizational Performances. *Strategic Management*, 25 (3), pp. 28–37. DOI: 10.5937/straman2003028d.
- Ekaningsih, A. S., Sonu, K., Kristianto, T., and Manalu, M. 2020. The Effect of Organizational Culture to Employee Performance through the Work Environment in Harbor-mastership and Authority of Port Class III Tarakan. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, pp. 2046–56.
- Eliyana, A., Ma'arif, S., and Muzakki. 2019. Job Satisfaction and Organizational Commitment Effect in the Transformational Leadership towards Employee Performance. *European Research on Management and Business Economics*, 25(3), pp. 144–50. DOI: 10.1016/j.iedeen.2019.05.001.
- El-Kassar, A. N., Dagher, G. K., Lythreatis, S., and Azakir, M. 2022. Antecedents and Consequences of Knowledge Hiding: The Roles of HR Practices, Organizational Support for Creativity, Creativity, Innovative Work Behavior, and Task Performance. *Journal of Business Research*, 140, pp. 1–10. DOI: 10.1016/j.jbusres.2021.11.079.
- Farrow, Elissa. 2022. Determining the Human to AI Workforce Ratio – Exploring Future Organisational Scenarios and the Implications for Anticipatory Workforce Planning. *Technology in Society*, 68. DOI: 10.1016/j.techsoc.2022.101879.
- Frank, M. R., Autor, D., Bessen, J. E., Brynjolfsson, E., Cebrian, M., Deming, D. J., Feldman, M., Groh, M., Lobo, J., Moro, E., Wang, D., Youn, H., and Rahwan, I. 2019. Toward Understanding the Impact of Artificial Intelligence on Labor. *Proceedings of the National Academy of Sciences of the United States of America*, 116(14): pp. 6531–39.
- Goldberg, Lewis R. 1990. Personality Processes and Individual Differences: An Alternative 'Description of Personality': The Big-Five Factor Structure. *Journal of Personality and Social Psychology*, 59(6), pp. 1216–29.
- González-González, Tamara and García-Almeida, Desiderio J. 2021. Frontline Employee-Driven Innovation through Suggestions in Hospitality Firms: The Role of the Employee's Creativity, Knowledge, and Motivation. *International Journal of Hospitality Management*, 94. DOI: 10.1016/j.ijhm.2021.102877.
- Gruman, Jamie A. and Saks, Alan M. 2011. Performance Management and Employee Engagement. *Human Resource Management Review*, 21(2), pp. 123–36. DOI: 10.1016/j.hrmr.2010.09.004.
- Gunawan, Arien A. and Dhewanto, Wawan. 2012. Why Eco-Friendly Family Business Is Less Popular in Indonesia?. *Procedia - Social and Behavioral Sciences*, 57, pp. 61–68. DOI: 10.1016/j.sbspro.2012.09.1158.
- Hackman, J. Richard and Oldham, G. R. 1976. Motivation through the Design of Work: Test of a Theory. *Organizational Behavior and Human Performance*, 16, pp. 250–79.
- Hadi-Adha, L., Asyhadie, Z., and Kusuma, R.

2020. Industrial Digitalization and Its Impact on Labor and Employment Relationships in Indonesia. *Jurnal Kompilasi Hukum*, 5(2). DOI: 10.29303/jkh.v5i2.49.
- Hanafi, Agustina. 2016. Influence of Individual Characteristic and Organization Climate on Job Satisfaction and Its Impact on Employee Performance. *Sains Humanika*, 8(4). DOI: 10.11113/sh.v8n4.843.
- Harwiki, Wiwiek. 2016. The Impact of Servant Leadership on Organization Culture, Organizational Commitment, Organizational Citizenship Behaviour (OCB) and Employee Performance in Women Cooperatives. *Procedia-Social and Behavioral Sciences*, 219, pp. 283–90. DOI: 10.1016/j.sbspro.2016.04.032.
- Hendarman, Achmad Fajar and Tjakraatmadja, Jann Hidajat. 2012. Relationship among Soft Skills, Hard Skills, and Innovativeness of Knowledge Workers in the Knowledge Economy Era. *Procedia - Social and Behavioral Sciences*, 52, pp. 35–44. DOI: 10.1016/j.sbspro.2012.09.439.
- Herjanto, Halimin and Franklin, Drew. 2019. Investigating Salesperson Performance Factors: A Systematic Review of the Literature on the Characteristics of Effective Salespersons. *Australasian Marketing Journal*, 27(2), pp. 104–12. DOI: 10.1016/j.ausmj.2018.12.001.
- Ibrahim, H. I., Isa, A., and Shahbudin, A. S. M. 2016. Organizational Support and Creativity: The Role of Developmental Experiences as a Moderator. *Procedia Economics and Finance*, 35, pp. 509–14. DOI: 10.1016/s2212-5671(16)00063-0.
- Ibrahim, N. H., Ismail, T. N. T., and Awis, M. L. 2018. Embracing the Need of Employee Creativity and Innovation: A Study of Selected Government Linked Companies (GLCs). *International Journal of Academic Research in Business and Social Sciences*, 8(9). DOI: 10.6007/ijarbss/v8-i9/4662.
- Indarti, Sri. 2011. Pengaruh Tanggung Jawab Sosial Perusahaan (Corporate Social Responsibility) dan Budaya Organisasi terhadap Kepuasan Kerja dan Kinerja Bisnis (Studi pada BUMN dan BUMD di Propinsi Riau). *JAM: Jurnal Aplikasi Manajemen*, 9(2), pp. 669–85.
- Innocenti, Stefania and Golin, Marta. 2022. Human Capital Investment and Perceived Automation Risks: Evidence from 16 Countries. *Journal of Economic Behavior and Organization*, 195, pp. 27–41. DOI: 10.1016/j.jebo.2021.12.027.
- Intan-Safitri, Fena and Andriyanty, Reny. 2022. Analisis Kinerja Karyawan PT Henan Putihrai Sekuritas Jakarta Terkait Hardskill yang Dimoderasi oleh Komitmen Organisasi. *Mediastima*, 28(2), pp. 133–42. DOI: 10.55122/mediastima.v28i2.571.
- International Labor Organization. 2022. *Trends 2022 ILO Flagship Report World Employment and Social Outlook*. Geneva.
- International Labour Organization. 2016. *The Future of Jobs at Risk of Automation*.
- Irefin, Peace and Mechanic, Mohammed A. 2014. Effect of Employee Commitment on Organizational Performance in Coca-Cola Nigeria Limited Maiduguri. *Borno State*, Vol. 19.
- Jaiswal, A., Arun, C. J., and Varma, A. 2022. Rebooting Employees: Upskilling for Artificial Intelligence in Multinational Corporations. *International Journal of Human Resource Management*, 33(6), pp. 1179–1208. DOI: 10.1080/09585192.2021.1891114.
- Jatobá, M., Santos, J., Gutierriz, I., Moscon, D., Fernandes, P. O., and Teixeira, J. P. 2019. Evolution of Artificial Intelligence Research in Human Resources. *Procedia Computer Science*, Vol. 164, pp. 137–42. Elsevier B.V.
- Johansson, J., Herranen, S., and Mccauley, B. 2019. *The Application of Artificial Intelligence (AI) in Human Resource Management: Current State of AI and Its Impact on the Traditional Recruitment Process*. Jönköping International Business School, Jönköping.
- Kilu, Rufai Haruna and Sanda, Mohammed Aminu. 2020. Green Work Environments and Workforce Productivity among Energy Organizations in Ghana. *In Advances in Intelligent Systems and Computing*, Vol. 1207, pp. 163–70. AISC. Springer.
- Kim, M. J., Bonn, M., Lee, C. K., and Kim, J. K. 2019. Effects of Employees' Personality and Attachment on Job Flow Experience Relev-

- ant to Organizational Commitment and Consumer-Oriented Behavior. *Journal of Hospitality and Tourism Management*, 41, pp. 156–70. DOI: 10.1016/j.jhtm.2019.09.010.
- Kim, Y. J., Kim, W. G., Choi, H. M., and Phetvaaron, K. 2019. The Effect of Green Human Resource Management on Hotel Employees' Eco-Friendly Behavior and Environmental Performance. *International Journal of Hospitality Management*, 76, pp. 83–93. DOI: 10.1016/j.ijhm.2018.04.007.
- Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., Henrica, C. W., and Van Der Beek, A. J. 2011. Conceptual Frameworks of Individual Work Performance: A Systematic Review. *Journal of Occupational and Environmental Medicine*, 53(8), pp. 856–66. DOI: 10.1097/JOM.0b013e318226a763.
- Kshetri, Nir. 2020. Evolving Uses of Artificial Intelligence in Human Resource Management in Emerging Economies in the Global South: Some Preliminary Evidence. *Management Research Review*, 44(7), pp. 970–90. DOI: 10.1108/MRR-03-2020-0168.
- Lawson, Daniel L. 2010. *Automation and Its Effects on the Workforce. Recommended Citation*. East Tennessee State University, Tennessee.
- Lay, Y., Basana, S. R., and Panjaitan, T. W. S. 2020. The Effect of Organizational Trust and Organizational Citizenship Behavior on Employee Performance. *SHS Web of Conferences*, 76, 01058. DOI: 10.1051/shsconf/20207601058.
- Lingmont, Derek N. J. and Alexiou, Andreas. 2020a. The Contingent Effect of Job Automating Technology Awareness on Perceived Job Insecurity: Exploring the Moderating Role of Organizational Culture. *Technological Forecasting and Social Change*, 161. DOI: 10.1016/j.techfore.2020.120302.
- Liu, D., Meagher, K. J., and Wait, A. 2022. Market Conditions and Firm Morality: Employee Trust in the Honesty of Their Managers. *Journal of Economic Behavior and Organization*, 204, pp. 89–106. DOI: 10.1016/j.jebo.2022.10.006.
- Ly, Bora. 2023. Green HRM and Eco-Friendly Behavior in Cambodian Public Organizations: The Mediation of Organizational Commitment. *Environmental Challenges*, 10. DOI: 10.1016/j.envc.2022.100674.
- Made, A. A., Dewi, D., Sudja, N., and Yuesti, A. 2021. Role of Organizational Commitment on Employee Performance. *Segce Journals*, 4(1), pp. 17–28. DOI: 10.1234/ijsegce.v4i1.169.
- Maduko, Chibuikwe and Puche, Pedro Vidal. 2020. *The Impact of Hard and Soft Skills on Managers' Innovativeness*. MBA Thesis, Blekinge Institute of Technology, Karlskrona, Sweden.
- Makarius, E. E., Mukherjee, D., Fox, J. D., and Fox, A. K. 2020. Rising with the Machines: A Sociotechnical Framework for Bringing Artificial Intelligence into the Organization. *Journal of Business Research*, 120, pp. 262–73. DOI: 10.1016/j.jbusres.2020.07.045.
- Margherita, Emanuele Gabriel and Braccini, Alessio Maria. 2021. Managing Industry 4.0 Automation for Fair Ethical Business Development: A Single Case Study. *Technological Forecasting and Social Change*, pp. 172. DOI: 10.1016/j.techfore.2021.121048.
- Masri, Hiba A., and Jaaron, Ayham A. M. 2017. Assessing Green Human Resources Management Practices in Palestinian Manufacturing Context: An Empirical Study. *Journal of Cleaner Production*, 143, pp. 474–89. DOI: 10.1016/j.jclepro.2016.12.087.
- Mikalef, P., Lemmer, K., Schaefer, C., Ylinen, M., Fjortoft, S. O., Torvatn, H. Y., Gupta, M., and Niehaves, B. 2023. Examining How AI Capabilities Can Foster Organizational Performance in Public Organizations. *Government Information Quarterly*. DOI: 10.1016/j.giq.2022.101797.
- Mugizi, W., Bakkabulindi, F. E. K., and Bisaso, R. 2015. Antecedents of Commitment of Academic Staff in Universities in Uganda: A Conceptual Paper. *NKUMBA Business Journal*, 14, pp. 220–41.
- Murad, Mohammed Al-Nashmi and Amer, Redhwan Ali. 2015. The Impact of Information Technology Adoption on Employee Productivity in Nongovernmental Organizations in Yemen. *International Journal of Social Sciences and Humanities Research*, 3(2), pp. 32–50.

- Na, Kyunga. 2021. The Effect of On-the-Job Training and Education Level of Employees on Innovation in Emerging Markets. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), pp. 1–20. DOI: 10.3390/joitmc7010047.
- Panagiotis, M., Alexandros, S., and George, P. 2014. Organizational Culture and Motivation in the Public Sector. The Case of the City of Zografou. *Procedia Economics and Finance*, 14(14), pp. 415–24. DOI: 10.1016/s2212-5671(14)00730-8.
- Parveen, Shahida. 2019. Exploring the Impact of Organizational Commitment on Employees Performance. *Journal of Business and Management (IOSR_JBM)*, 21(12), pp. 47–56. DOI: 10.9790/487X-2112024756.
- Peker, M., Dođru, O. C., and Meşe, G. 2022. Role of Supervisor Behavioral Integrity for Safety in the Relationship between Top-Management Safety Climate, Safety Motivation, and Safety Performance. *Safety and Health at Work*, 13(2), pp. 192–200. DOI: 10.1016/j.shaw.2022.03.006.
- Premnath, S. N. and Christ, A. Arun. 2019. A Qualitative Study of Artificial Intelligence Application Framework in Human Resource Management. *Journal of Xi'an University of Architecture & Technology*, XI(XII), pp. 1193–1209.
- Radonjić, A., Duarte, H., and Pereira, A. 2022. Artificial Intelligence and HRM: HR Managers' Perspective on Decisiveness and Challenges. *European Management Journal*. DOI: 10.1016/j.emj.2022.07.001.
- Rambe, D., Hasibuan, A. N., and Chaerunnisa. 2020. Analisis Kinerja Guru Dipengaruhi Servant Leadership dan Komitmen Organisasi (Survei pada Guru SMPN 124 Jakarta). *Mediastima*, 26(2), pp. 203–22.
- Rambey, T., Hasibuan, A. N., Prakoso, B., and Yuniastuti, A. 2021. Strategi Manajemen Perubahan Hipmikindo dalam Membangun Sumberdaya Technopreneur dengan Mendirikan Entrepreneur Centres. *BLOGCHAIN: Jurnal Bisnis, Logistik dan Supply Chain*, 1(2), pp. 51–59.
- Renyut, B. C., Modding, H. B., Bima, J., and Sukmawati. 2017. The Effect of Organizational Commitment, Competence on Job Satisfaction and Employees Performance in Maluku Governor's Office. *IOSR Journal of Business and Management*, 19(11), pp. 18–29. DOI: 10.9790/487X-1911031829.
- Roberts, R., Flin, R., Millar, D., and Corradi, L. 2021. Psychological Factors Influencing Technology Adoption: A Case Study from the Oil and Gas Industry. *Technovation*, pp. 102. DOI: 10.1016/j.technovation.2020.102219.
- Royal Society, The and British Academy, The. 2018. *The Impact of Artificial Intelligence on Work*.
- Rusu, G., Avasilcăi, S., and Huțu, C. A. 2016. Organizational Context Factors Influencing Employee Performance Appraisal: A Research Framework. *Procedia - Social and Behavioral Sciences*, 221, pp. 57–65. DOI: 10.1016/j.sbspro.2016.05.090.
- Ryu, Hyun Sun and Lee, Jae Nam. 2018. Understanding the Role of Technology in Service Innovation: Comparison of Three Theoretical Perspectives. *Information and Management*, 55(3), pp. 294–307. DOI: 10.1016/j.im.2017.08.003.
- Sangeeta, Rani. 2019. Human Resource Management and Artificial Intelligence. *International Research Journal of Management Sociology and Humanity (IRJMSH)*, 10(Online), pp. 2348–9359.
- Saxena, Akanksha. 2020. The Growing Role of Artificial Intelligence in Human Resource. *EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal*, (8). DOI: 10.36713/epra2013.
- Schmitt, Neal W. and Highhouse, Scott. 2013. *Handbook of Psychology*. Vol. 12. 2nd ed. Edited by I. B. Weiner. New Jersey: John Wiley & Sons, Inc.
- Schwabe, Henrik and Castellacci, Fulvio. 2020. Automation, Workers' Skills and Job Satisfaction. *PLoS ONE*, 15(11 November). DOI: 10.1371/journal.pone.0242929.
- Senen, S. H., Masharyono, M., and Edisa, N. 2018. The Effect of Job Characteristics to Employee's Performance: A Case Study on Employees at Interior Industry. In *3rd Global Conference On Business, Management, and Entrepreneurship*. Atlantis Press, pp. 227–32.

- Setyawan, Iwan. 2021. Apakah Komitmen Organisasi dan Keterlibatan Kerja Merupakan Prediktor Bagi Kinerja Individu pada Organisasi Nirlaba. *BLOGCHAIN: Jurnal Bisnis, Logistik dan Supply Chain*, 1(1), pp. 24–34.
- Singh, Abhilasha and Shaurya, Apurva. 2021. Impact of Artificial Intelligence on HR Practices in the UAE. *Humanities and Social Sciences Communications*, 8(1). DOI: 10.1057/s41599-021-00995-4.
- Straub, L., Hartley, K., Dyakonov, I., Gupta, H., van Vuuren, D., and Kirchherr, J. 2023. Employee Skills for Circular Business Model Implementation: A Taxonomy. *Journal of Cleaner Production*, pp. 410. DOI: 10.1016/j.jclepro.2023.137027.
- Suharti, Lieli and Sugiarto, Agus. 2020. A Qualitative Study of Green HRM Practices and Their Benefits in the Organization: An Indonesian Company Experience. *Business: Theory and Practice*, 21(1), pp. 200–211. DOI: 10.3846/btp.2020.11386.
- Suharto, Suyanto, and Hendri, N. 2019. The Impact of Organizational Commitment on Job Performance. *International Journal of Economics and Business Administration*, VII (2), pp. 189–206.
- Sukardi and Yuliadi. 2020. The Effect of Job Description, Motivation, and Competence on the Employee Performance of Semarang Secretary Office. *International Journal of Economics and Management Studies*, 7(11), pp. 46–49. DOI: 10.14445/23939125/ijems-v7i11p107.
- Sulistiono, D., Hermawan, A., and Sukmawati, A. 2020. The Effect of Empowerment and Employee Engagement on Job Satisfaction, Organizational Commitment and Its Impact on Performance of PTPN V. *Jurnal Manajemen dan Agribisnis*. DOI: 10.17358/jma.16.3.142.
- Sundararajan, T. P. K., Kee, D. M. H., Albert, P. J., Subramaniam, M., Thirupathi, H., Angarita, L. S. C., Restrepo, C. P., Lopez, C. A., Vashney, K., Kumar, K. P., and Pandey, R. 2020. The Effects of Organizational Culture on Employee Performance: A Study of the Edge Newspaper. *International Journal of Applied Business and International Management*, 5(2), pp. 44–53. DOI: 10.32535/ijabim.v5i2.857.
- Syafri, W., Prabowo, H., Nur, S. A., and Muafi, Muafi. 2021. The Impact of Workplace Green Behavior and Green Innovation on Green Performance of SMEs: A Case Study in Indonesia. *Journal of Asian Finance*, 8(5), pp. 365–74. DOI: 10.13106/jafeb.2021.vol8.no5.0365.
- Tambe, P., Cappelli, P., and Yakubovich, V. 2019. Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. *California Management Review*, 61(4), pp. 15–42. DOI: 10.1177/0008125619867910.
- Tanjoyo, C., Harianto, E., and Sutrisno, T. F. C. W. 2021. The Role of TQM and Organizational Culture on Operational Performance. *JAM: Jurnal Aplikasi Manajemen*, 19(4), pp. 938–48. DOI: 10.21776/ub.jam.2021.019.04.20.
- Taruna, Anggapradja and Indra, Ronny Wijaya. 2017. Effect of Commitment Organization, Organizational Culture, and Motivation to Performance of Employees. *JAM: Jurnal Aplikasi Manajemen*, 15(1), pp. 74–80. DOI: 10.18202/jam23026332.15.1.10.
- Thu-Trang, Pham. 2022. How Do Work Characteristics Affect Job Performance? An Investigation in Vietnam. *Cogent Business and Management*, 9(1). DOI: 10.1080/23311975.2022.2116801.
- Turja, T., Särkikoski, T., Koistinen, P., and Melin, H. 2022. Basic Human Needs and Robotization: How to Make Deployment of Robots Worthwhile for Everyone?. *Technology in Society*, pp. 68. DOI: 10.1016/j.techsoc.2022.101917.
- US-EU Trade and Technology Council Inaugural Joint Statement. 2022. *The Impact of Artificial Intelligence on the Future of Workforces in the European Union and the United States of America*.
- Valaei, N., Rezaei, S., and Ismail, W. A. W. 2017. Examining Learning Strategies, Creativity, and Innovation at SMEs Using Fuzzy Set Qualitative Comparative Analysis and PLS Path Modeling. *Journal of Business Research*, 70, pp. 224–33. DOI: 10.1016/j.jbusres.2016.08.016.

- Wahyunanti, T., Ketut, D., Ardiana, R., and Ridwan, M. S. 2018. The Effect of Individual Characteristics, Employees Commitment, Job Stress on Job Satisfaction and Employees Performance in PT. Timbul Persada in Turban East Java. *In TRTF International Symposium Proceeding*, pp. 103–7.
- Widiastuti, T., Aditya, E. M., and Paranita, E. S. 2015. Peningkatan Kualitas Layanan Satu Pintu di Kota Semarang dengan Penerapan Hard Skill dan Soft Skill. *JAM: Jurnal Aplikasi Manajemen*, 13(3), pp. 390–401.
- Widyawati, Sulmiah, and Nurlaela. 2021. Organizational Culture and Employee Performance: Assessing the Influence on the Implementation of Public Services during the Covid-19 Pandemic. *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu dan Praktek Administrasi*, 18(2), pp. 176–87.
- Wong, Poh-Kam and Ngin, Phyllis M. 1997. *Production Economics Automation and Organizational Performance: The Case of Electronics Manufacturing Firms in Singapore*. Vol. 52.
- World Economic Forum. 2020. *The Future of Jobs Report 2020*. Geneva.
- Wua, I. W. G., Noermijati, and Yuniarinto, A. 2022. The Influence of Organizational Culture on the Employee Performance Mediated by Job Satisfaction and Organizational Commitment. *Jurnal Aplikasi Manajemen*, 20(3), pp. 542–51. DOI: 10.21776/ub.jam.2022.020.03.07.
- Yam, K. C., Tang, P. M., Jackson, J. C., Su, R., and Gray, K. 2022. The Rise of Robots Increases Job Insecurity and Maladaptive Workplace Behaviors: Multimethod Evidence. *Journal of Applied Psychology*, pp. 1–21. DOI: 10.1037/apl0001045.suppl.
- Yao, T., Qiu, Q., and Wei, Y. 2019. Retaining Hotel Employees as Internal Customers: Effect of Organizational Commitment on Attitudinal and Behavioral Loyalty of Employees. *International Journal of Hospitality Management*, 76, pp. 1–8. DOI: 10.1016/j.ijhm.2018.03.018.
- Zahoor, N., Donbesuur, F., Christofi, M., and Miri, D. 2022. Technological Innovation and Employee Psychological Well-Being: The Moderating Role of Employee Learning Orientation and Perceived Organizational Support. *Technological Forecasting and Social Change*, 179. DOI: 10.1016/j.techfore.2022.121610.
- Zhou, Y., Cheng, Y., Zou, Y., and Liu, G. 2022. E-HRM: A Meta-Analysis of the Antecedents, Consequences, and Cross-National Moderators. *Human Resource Management Review*, 32(4). DOI: 10.1016/j.hrmr.2021.100862.