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**The Influence of Corporate Entrepreneurship, Industry 4.0 Adoption, Digital Transformation Capability on Business Performance Mediated by Employee Engagement in the Telecommunication Industry in Indonesia**

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**Abstract**

The development of the Industrial Revolution has been going on since the era of the 1st industrial revolution starting in the 18th century using steam engine technology, then continuing with the 2.0 industrial revolution in the 19th century, where electricity as an energy source was continued with the 3rd industrial revolution in the 20th century, namely using electronics and computers and currently Industry 4.0 with the development of IT automation such as big data, Internet of Things, Artificial Intelligence and Machine Learning and cloud computing. The rapid development of technology needs to be seen as to its impact, especially in Indonesia and the telecommunications supporting industry sector, where with the wide demographics of the region and population, the development of equitable technology has become a phenomenon and a challenge for equal distribution of technological progress. The aim of this research is to test how stakeholders and decision makers (corporate entrepreneurship), industry 4.0 adoption and digital transformation capability have a direct influence on business performance and indirectly through employee engagement in telecommunications support sector companies. This research data was collected through a questionnaire with a five-point scale. The research population is based on companies supporting the telecommunications industry in Indonesia which are based in Jakarta and managerial level respondents with a total of 317 out of a target of 305 respondents with a time span of February – March 2024. The results of this research show that stakeholders (corporate entrepreneurship) provide positive influence on business performance both directly and indirectly through the role of employee support (employee engagement) inherent in the organization and also the direct and indirect influence of the adoption of industry 4.0 (industry 4.0 adoption) and Digital Transformation (digital transformation capability) on business performance through employee engagement with the organization.

**Keywords:** corporate entrepreneurship, industry 4.0, digital transformation capability, business performance, employee engagement, telecommunication industry

## **1. Introduction**

The rapid development of technology today is in line with the development of the Industrial Revolution. A revolution can be said to be a transformational event in world history that will have an influence on aspects of human life where the goal is how technology can move and develop along with certain periods when a technology is discovered which becomes the momentum of the Industrial Revolution. Also, various aspects of human life activities today are greatly influenced by technological developments (Rahayu et al., 2023). The Industrial Revolution in development began with the introduction of steam engines as the beginning of the Industrial Revolution 1.0, then developed again with Industry 2.0 by using electricity to replace steam engines which were no longer relevant at that time, then continued with the Industrial Revolution 3.0, namely with the introduction of computers and the start of digitalization trend then transition to Industry 4.0. Chen, (2021) states that industry 4.0 is the application of corporate strategy, business operations, processes, and relationships across all elements of the company, creating new opportunities, effective management, and how to build sustainable performance. Tang et al (2022), stated that industry 4.0 has an impact on a practical circular economy by integrating traditional processes with information and technological intelligence to increase flexibility and production efficiency.

In Indonesia itself, there is a phenomenon that the implementation of the industrial revolution 4.0 has not been optimal and requires attention from the government and industrial behavior in Indonesia to be able to adapt to the rapid development of technology. The capability for Industry 4.0 Adoption (I4.0 A) is very necessary at this time so it is hoped that it will create a competitive advantage over Digital Transformation Capability (DTC).

In the Institute Management Development report in measuring world digital competitiveness, Indonesia is ranked 11th in Asia or 108th globally in the aspects of assessing science (knowledge), technology (technology) and future readiness (future readiness).

Then for achievements in the application of the industrial revolution 4.0, Indonesia in the global region and also ASEAN, can be seen in the picture below based on 3 level categories, namely: advance, early-stage implementation and planning.

From this phenomenon, the adoption of Industry 4.0 is not only the task of the government, but also of society and corporations who are part of Industry 4.0 adoption and the application of digital transformation capabilities. For the corporate sector in industry 4.0 adoption and digital transformation capability will have an influence on company performance (business performance), where this is closely related to corporate entrepreneurship and the relationship attached to employee engagement. Corporate Entrepreneurship (CE) in this case has a strategic role in making breakthroughs in Industry 4.0, in this case it is needed for development, improvisation to find out how the company's business is going, sustainable and growing. For this, corporate entrepreneurship must be able to manage resource capabilities and risks achieving company goals and be successful. Li et al (2020) argue that entrepreneurship as an important factor in encouraging industrial innovation is closely related to economic development. Apart from demands for company development, this has links with industry to provide material guarantees for scientific and technological innovation.

Business performance refers to the extent to which a company or organization achieves its stated goals and objectives. This involves evaluating performance based on certain criteria, such as financial profitability, revenue growth, market share, customer satisfaction, operational efficiency, and so on. Business performance evaluation is important for measuring a company's success and identifying areas that need improvement or improvement. Ahmed et al (2020) stated that business performance will be an evaluation of management to determine the direction of the company's development and success. Business performance is not only measured by individual contributions. Business performance is also used in the future to determine goals and success, where to support this success there are various factors from financial performance, company operational efficiency, customer satisfaction, position in the market and analysis of competitors, innovation and improvement and employee engagement which will contribute and productive for organizational success.

Employee involvement in adapting to Industry 4.0 and digital transformation plays a central and important role in how it will help the organization's business performance. Apart from adapting to digital technology, employee involvement is very necessary, especially how rapid technological changes can be followed by employees' ability to understand, adapt, and improve. knowledge and ability to operate. Several previous studies have shown that employee involvement has an influence on business performance. Ghlichlee & Bayat (2021) show that employee involvement must have strong motivation and commitment within the organization to achieve organizational success.

The research gap in this research regarding the phenomena that have been described is still limited regarding research in Indonesia regarding industry 4.0 adoption and digital transformation capability specifically and requires exploration of the relationship and influence on employee engagement and business performance. Ye et al (2024) criticize that technological developments provide resistance to workers and the presence of technology provides a burden where the implementation of digital transformation can provide changes to company management (change management). To explore what the gaps are, it is necessary to carry out exploration and statistical tests to carry out studies and observations. From the observations that have been made, the implementation of Industry 4.0 and digital transformation is still an obstacle due to:

1. Increasingly rapid technological changes affect the competency level of industry players, from the highest level down to staff level.
2. The company's unpreparedness in providing training and programs to increase competency, due to the focus on human resource development. It is still not the focus compared to existing business programs.
3. Traditional patterns are still the basic concept compared to technology adoption which requires new investment.
4. The gap in technological development is because Indonesia, as the largest population, still acts as a consumer rather than a producer.
5. A large area requires equal distribution of technology for all regions, where technological development is still centralized in large cities, it needs to be supported by digital infrastructure for all regions.

The novelty of this research can be described as follows, namely that there is still limited research on the relationship between corporate entrepreneurship, business performance, industry 4.0 adoption and digital transformation capability which is mediated by employee engagement and there is still limited research on the relationship between these variables in supporting companies in Indonesian telecommunications industry.

**2. Research Method**

This research uses quantitative research, namely by using analysis of data collected or collected in the form of numbers. Borg & Gall, (1989), stated that quantitative research has a positivistic, scientific character. The unit of analysis uses individuals as research objects. Fowler (1992) suggests that a unit of analysis is needed to obtain an explanation of the entire unit to be analyzed. Fowler (1992), believes that the unit of analysis, the individual who will be the object of research, knows the problem that is occurring, the impact, understands and provides clarification and what the influence/impact will be. The data used for collection uses cross section data, namely data collected over a certain time period (Gujarati, 2004). The purpose of data collection is to measure and analyze the relationship or differences between independent, mediating and dependent variables. The approach that will be taken is using a deductive approach, namely by testing hypotheses from data collection and analysis. Data collection will use surveys and the resulting data will be in the form of numbers or numerical data.

Table 1. Types of Telecommunication Support Companies

No	Types of Telecommunication Support Companies	Frequency
1	Regulator and Government	2
2	Telecommunication Operator	4
3	Tower Operation & Fiber Lease	10
4	Manage Services	3
5	Network CORE Provider	7
6	Telecommunication Supplier & Services	10
7	Cloud Provider	3
8	Technology Information	10

Source: Data processed by researchers

**Sampling Technique and Sample Number**

There are 2 criteria, namely using (1) judgment sampling, namely by selecting the most profitable subjects or the best in obtaining information and (2) quota sampling, namely, to ensure that the group objects to be studied meet the quota based on the total number for each group/indicator from population.

The sample size calculation in the research uses the formula (Hair et al, 2014), namely multiplying  $n = 5$  to 10 from the number of indicators used, so the calculation size for the number of samples or respondents can be calculated as the number of indicators in this research is  $61 \times 5 = 305$  samples and the selection of a sample of 305 is considered to represent that this is the range of appropriate research sample sizes from 30 – 500.

**Method of collecting data**

The data collection technique is through distributing questionnaires where in the questionnaire there will be questions about indicators that represent the variables to be studied. Online questionnaires are an effective method and can be widely distributed and reach the population in a short time (Tauni, Fang, & Iqbal, 2017). The questionnaire will be primary data, namely data obtained directly from respondents, this data will be original data. Ajayi (2017) stated that the research source must be in line with the topic of the questionnaire so that the data collected will answer questions or assumptions in the research. The survey was conducted in the period February - March 2024, the data source to be processed is primary data, where this primary data is obtained directly from the research object, namely from the results of the questionnaire. Questionnaires will be distributed through face-to-face discussion stages and via email.

**Hypothesis Testing**

Testing for hypotheses will be carried out with p value tests, namely for testing hypotheses. For testing, it can be obtained with a confidence level of 95% with a significance level of 5% or  $\alpha = 0.05$  (Ghozali, 2016). Criteria for testing as follows:

1. If the test value  $p > 0.05$  then it means, there is no influence of the independent variable on the dependent variable.
2. If the test value  $p < 0.05$  then it means, there is an influence of the independent variable on the dependent variable.

The Sobel test is carried out to see the influence of the independent relationship on the dependent variable through a mediating variable or the relationship between 2 variables through a mediating variable that is significantly capable of acting as a mediator in the relationship. For a t value  $\geq 1.96$ , this variable is able to mediate between the independent and dependent variables.

**3. Results**

Tabel 2. Respondents' Characteristics

No	Characteristics	Frequency	Percentage
1	Gender		
	Man	230	72.56%
	Woman	87	27.44
	Total	317	100%
2	Age Range		
	20-30 years old	15	4,73%
	31 -40 years old	83	26,18%
	41 -50 years old	172	54,26%
	> 50 years old	47	14,83%
Total	317	100%	
3	Education		
	Diploma	17	5,36%
	Bachelor's degree	218	68,77%
	Master's degree	81	25,55%

No	Characteristics	Frequency	Percentage
	Doctor degree	1	0,32%
	Total	317	100%
4	Position		
	Chief / Director	52	16,40%
	General Manager / Senior Manager	97	30,60%
	Manager	168	53,00%
	Total	317	100%
5	Length of Work		
	1 - 5 years	65	20,50%
	6 - 10 years	60	18,93%
	11 - 15 years	48	15,14%
	15 > years	144	45,43%
	Total	317	100%

Source: Data processed by researchers

### Analysis of Research Results

Table 3. Cronbach's Alpha Reliability Test Results

No	Variable	Level	Cronbach's Coefficient	Alpha	Conclusion
1	Corporate Entrepreneurship	0,6	0.84		Reliable
1.a	Proactiveness	0,6	0.75		Reliable
1.b	New Business venturing	0,6	0.8		Reliable
1.c	Self renewal	0,6	0.9		Reliable
1.d	Organizational Innovation	0,6	0.91		Reliable
2	Industry 4.0 Adoption	0,6	0.90		Reliable
2.a	Vertical & horizontal Integration	0,6	0.92		Reliable
2.b	Innovation Characteristic	0,8	0.88		Reliable
3	Digital Transformation Capability	0,6	0,94		Reliable
4	Employee Engagement	0,6	0.87		Reliable
4.a	Job Engagement	0,6	0.79		Reliable
4.b	Organizational Engagement	0,6	0.95		Reliable
5	Business Performance	0,6	0.89		Reliable
5.a	Financial Performance	0,6	0.86		Reliable
5.b	Process Performance	0,6	0.91		Reliable
5.c	Internal Performance	0,6	0.89		Reliable

Source: Data processed by researchers

**Goodness of Fit Test**

Table 5. Full Sample Model Fit Index Results

Measurement Type	Value	Target	Conclusion
Absolute Fit Indices	CMIN= 274.912; P = 0.000)	P Value > 0.05	Poor Fit
	RMSEA = 0,069	$0.05 \leq RMSEA < 0.10$	Good Fit
	RMR = 0.021	$-4.0 < x > 4.0$	Good Fit
	NFI = 0,938	0 – 1	Good Fit
Incremental Indices	Fit CFI = 0,961	0 – 1	Good Fit
	IFI = 0,962	0 – 1	Good Fit
	RFI = 0,923	0 – 1	Good Fit
Parsimony Indices	Fit AGFI = 0.869	$\leq GFI (0.907)$	Good Fit
	PNFI = 0.752	$\geq NFI (0.938)$	Poor Fit

Source: Data processed by researchers

**Hypothesis Test Results**

Table 6. Direct Relationship Hypothesis Test Results

Influence Test	Beta	S.E.	C.R.	Prob (1-Tail)	Conclusion
Corporate Entrepreneurship → Employee Engagement	0.480	0.125	3.829	0.000	H <sub>1</sub> accepted
Industry Adoption 4.0 → Employee Engagement	0.323	0.097	3.341	0.000	H <sub>2</sub> accepted
Digital Transformation Capability → Employee Engagement	-0.031	0.076	-0.409	0.342	H <sub>3</sub> rejected
Corporate Entrepreneurship → Business Performance	0.267	0.162	1.647	0.050	H <sub>4</sub> accepted
Industry Adoption 4.0 → Business Performance	0.065	0.121	0.534	0.297	H <sub>5</sub> rejected
Digital Transformation Capability → Business Performance	0.178	0.089	2.001	0.023	H <sub>6</sub> accepted
Employee Engagement → Business Performance	0.538	0.149	3.613	0.000	H <sub>7</sub> accepted

Source: Hypothesis Test Results with regression using SEM AMOS

Note: Significance Level 5%

**Discussion of Research Results**

**Hypothesis 1**

Hypothesis 1 is proven that corporate entrepreneurship has a positive influence on employee engagement, where this result is in accordance with previous research conducted by Kassa &

Raju (2015); Umair et Al (2018) & Ahmed et Al (2020). From the test results, a strong result was obtained, namely 0.480 or 48%, this indicates that in telecommunications supporting companies, corporate entrepreneurship provides the opportunity for workers to carry out exploration in accordance with company regulations, apart from that, employees also make contributions. ideas to support innovation or be involved in innovative projects in companies, telecommunications, so that the opportunity to be a part can provide motivation because they are given the space and opportunity to make a significant contribution to the company. An example that can be taken from indicators is how corporations face competitors, so they need to make new competitive breakthroughs that are in line with workers who carry out their duties seriously and totally in their work, so that this relationship makes performance optimal and contributes to telecommunications supporting companies.

### **Hypothesis 2**

Hypothesis 2 is proven that Industry 4.0 Adoption has a positive influence on employee engagement, where this result is in accordance with previous research conducted by Vrchota et al (2020); Sony & Mekoth (2022) and Szabo et Al (2023). From the research results, it was found that the coefficient value was 0.32 or 32%, this shows that the implementation of Industry 4.0 can be accepted by employees, even though it is not very significant or very strong, this is because digital transformation certainly creates a process transition that requires time for adaptation, so steps such as how to take part or be involved through technology, providing opportunities to improve abilities through new skills, opportunities to innovate, work carefully, efficiently, quickly and effectively. All of these things are of course very easy to achieve for employees in telecommunications supporting companies whose basis is the development of technology that supports telecommunications, so that with the very rapid progress of telecommunications, it makes it easy for workers to know and learn the latest technology in industry 4.0 (Big Data, Cloud, Internet of Things, Artificial Intelligence / Machine Learning and others).

### **Hypothesis 3**

Hypothesis 3 in the research results of digital transformation capability has a positive influence on employee engagement, from the digital transformation capability coefficient value of -0.031, meaning that if the perception of digital transformation capability increases, the perception of employee engagement will decrease. The test results show that the coefficient sign is not in accordance with the hypothesis and is not in accordance with previous research conducted by Singh & Arwal (2019), Gupta (2021) and Alanizan (2022). The research value of -0.031 or -3.1% shows that digital transformation capability has not been accepted by telecommunications supporting companies. The indication in this case is that digital transformation will bring changes to organizational culture, changes to work processes, apart from that there are other indications regarding uncertainty regarding the roles and responsibilities of workers, the development of digital technology also requires the role of workers who are able to be adaptive, but this adaptive Of course, it also requires costs in developing competencies and there are indications that digital technology is considered to pose a threat or can replace the role of humans with technology, machines and robots. Things like this require a communication role in



all elements of the company because technological innovation also requires humans as brains and skill operators, so it requires a collaborative role in this area.

#### **Hypothesis 4**

Hypothesis 4 is proven that corporate entrepreneurship has a positive influence on business performance, where this result is in accordance with previous research conducted by Tam et Al (2019), Li, Xu & Li (2019), Purkayastha & Gupta (2022). In the research, the coefficient value of 0.267 or 26% is still not very strong even though this coefficient value is positive. Indications of this are that telecommunications support companies in Indonesia have very large organizations and usually large companies are supported by quite a large amount of resources so that even though telecommunications support companies have quite good performance, they also bear the burden of OPEX (operational expenditure), such as for resources, the use of technology must also be followed by how to manage it after the project is completed (maintenance) and advances in technology mean that telecommunications support companies must continue to invest so as not to be left behind by competitors and collaborate and consortium (profit sharing) to reduce unnecessary expenses, for example by sharing networks, using joint submarine cables and using telecommunications towers together (collocation). So for this matter, stakeholders must be able to organize future business strategies so that the company's business can continue to be sustainable.

#### **Hypothesis 5**

Hypothesis 5 regarding the relationship between the industry 4.0 adoption variable has a positive influence on business performance, where the test results produce a prob value of  $0.297 > 0.10$  (Alpha 10%) thus rejecting H5. It can be concluded that statistically there is no influence of industry 4.0 adoption on business performance. From the research results, it was found that the coefficient value was 0.065 or only 6.5%, an indication that industry 4.0 applications in telecommunications supporting companies cannot directly produce optimal business performance. Investment is certainly a challenge for telecommunications supporting companies, especially at this time the influence in the world is still being felt starting from the Covid 19 pandemic, geopolitical pressures have had quite an influence, especially in the USD to Rupiah exchange rate conversion sector, so this is still a challenge for corporations due to the current use of technology. most of them come from abroad. Apart from that, the development of automation, robotics, machine learning and the internet of things still requires quite a bit of allocation, so corporations have to look at which areas need to be supported by updated Industry 4.0 technology and which sectors still use conventional/manual processes.

#### **Hypothesis 6**

Hypothesis 6 is proven that digital transformation capability has a positive influence on business performance, where this result is in accordance with previous research conducted by Kahrovic & Avdovic (2023), Caro, Cegarra, & Ruiz (2022) and Ye & Tong (2022). From the research results, a result of 0.178 or 17% can be interpreted, although it gives positive results but is not very strong, this is because telecommunications companies have a fairly large organization or company scale, so it takes time and allocated funds to make all processes integrated, so

companies tend to carry out in stages how the integration process can be carried out between all the applications used. Even though innovation for automation is supported by company management, there are still challenges regarding the limited availability of partners capable of carrying out integration, indications that the influence of Covid 19 has hampered the development of innovation because several supporting partners operate outside Indonesia, even though the integration process is carried out remotely, it still cannot be optimal. , so that the 3 years during the pandemic were less effective and finally global technological advances had an impact because they had to adjust to the conversion value, technological advances had an impact on the financial capacity of telecommunications companies, which on the other hand faced service price wars with consumers.

**Hypothesis 7**

Hypothesis 7 is proven that employee engagement has a positive influence on business performance, where this result is in accordance with previous research conducted by Gupta & Sharma (2016), Al-dalameh et Al (2018) and Ghlichlee & Bayat (2021). In the research, the coefficient results obtained were 0.538 or 53%, showing an indication that workers in telecommunications companies have a loyal nature (long working hours), have dedication, focus, sincerity and enthusiasm in being involved in the progress of the organization, so it can be said that telecommunications supporting companies have talents who are capable and qualified businesses with experience and understanding of cellular telecommunications advances, so that telecommunications companies with dedicated, experienced and skilled employees are not worried about threats from competitors, so it can be concluded that the performance of telecommunications supporting companies is obtained from the influence of dedication and loyalty from their employees. worker

Table 7. Inirect Relationship Hypothesis Test Results

Hypothesis	Tstat	Std Error	Pvalue (1Tail)	Conclusion
H <sub>8</sub> : There is a Positive Influence of Corporate Entrepreneurship on Business Performance through Employee Engagement	2.63	0.098	0.004	H <sub>8</sub> accepted
H <sub>9</sub> : There is a positive influence of Industry 4.0 Adoption on Business Performance through Employee Engagement	2.447	0.07	0.007	H <sub>9</sub> accepted
H <sub>10</sub> : There is a Positive Influence of Digital Transformation Capability on Business Performance through Employee Engagement	0.405	0.07	0.007	H <sub>10</sub> rejected

Source: Hypothesis Test Results with Sobel Test

Note: Significance Level 5%

### **Hypothesis 8**

Hypothesis 8 is proven that corporate entrepreneurship has a positive influence on business performance mediated by employee engagement, where this result is in accordance with previous research conducted by Saks (2006), Ahmed et Al (2020), and Lai et Al (2020). In the research, it was found that the coefficient value was 2.630, meaning that in telecommunications supporting companies there was a synergy between corporate entrepreneurship and business performance through employee engagement. This indicated that corporate entrepreneurship had innovated in facing competitors to achieve high performance through sincerity, dedication and loyalty. from workers, so that support from workers who have worked for more than 15 years contributes and contributes to the progress of telecommunications supporting companies. It can be said that the performance of these supporting companies has improved with the number of collaborations on strategic projects and also telecommunications supporting companies, some of which have gone public. so that their company's performance gets a good place in the market (stock exchange). The sincerity and loyalty of the workers makes the company have experienced employees due to the technological transformation of 2G, 3G, 4.5 G and 5G so that the company can make strategic plans, sustainable projects, grow in competence and have mutually supportive relationships with stakeholders and loyalty. workers become something to be proud of (no intra-management conflict) and makes collaboration and communication more accurate and stronger.

### **Hypothesis 9**

Hypothesis 9 is proven that Industry 4.0 adoption has a positive influence on business performance by mediating employee engagement, where this result is in accordance with previous research conducted by Tortorella et Al (2019), Jermstipparsert (2020) and Tortorella et Al (2021). In the research, a value of 2,447 was obtained regarding the relationship between industry 4.0 adoption and business performance through employee engagement as an indication that industry 4.0 applications can provide performance with the role of workers in telecommunications supporting companies, this is because technological developments must be supported by the ability of workers to operate. For example, in this case, the development of 5G technology with better speed quality than 4G/4.5 G, of course in its operations requires the role of workers in swapping/upgrading technology in the network area or using fiber optic channels, where the role of workers is to monitor and operate optimally and see the result of coverage t in an area.

### **Hypothesis 10**

Hypothesis 10 explains that digital transformation capability has no influence on business performance mediated by employee engagement, where this result is inconsistent with previous research conducted by Fu, Zha, & Zhou (2023), Ge, Lv, & Wang (2023) and Zhou et Al (2023). In this study, the results obtained were -0.405 or negative 4%. This shows an indication that workers cannot influence digital transformation on organizational performance because digital transformation is needed by telecommunications support companies to meet corporate needs and also the very rapid development of telecommunications requires technology to remain stable. Become a market leader for telecommunications support companies. This does not mean ignoring the role of workers, but digital transformation is based on needs, business strategy,

competition in the market and how things that cannot be done by workers or manually can be integrated through the application of digital technology. In other words, digital transformation can answer needs or problems in the organization or find solutions from technological innovation, but the role of workers who support performance is a separate role, technology can change quickly while in this research it was found that company performance can be achieved because of genuine desire, employee loyalty, dedication. and be part of contributing and contributing to the organization.

#### **4. Discussion**

Corporate Entrepreneurship has a positive and significant effect on employee engagement, illustrating that management in telecommunications supporting companies has employees who have experience and skills in a working period of more than 15 years, so it is an indication that employees are contributing to progress, this happens because there are indications that stakeholders interests have created a dynamic work environment, the development of the cellular telecommunications industry from 2G to 5G has provided space for employees to improve their abilities and competencies, the long life of dedication makes it easier for stakeholders to provide access to create innovation and apart from that there is recognition and appreciation from stakeholders to workers.

Industry 4.0 Adoption has a positive and significant effect on employee engagement, illustrating that the use of Industry 4.0 technology can provide space for employees to have experience and skills from the latest technological knowledge rather than having to continue formal education to the next level. There are indications that employees feel that technological advances can be adjusted by attending training or courses within the organization and carrying out direct practices from technology and service providers.

Digital transformation capability has no influence on employee engagement, indicating that digital transformation has indications of posing a threat to workers or resistance to change. Digital transformation is indeed necessary, but the strategic policy must be the right one to implement, because of the time span of loyalty from workers, of course this will make the company have to prioritize in making budget allocations and of course there must be a lot to review in carrying out digital transformation in the operational line which will have an increasing impact. CAPEX and OPEX burdens, so that what customers need becomes a priority rather than immediately carrying out digital transformation in the internal operational environment.

Corporate Entrepreneurship has a positive and significant effect on business performance, illustrating that there is an indication that stakeholders in telecommunications companies see that there are still many potential market opportunities in the telecommunications sector that can be developed, to boost performance, if in the era before 2023 the market being worked on is 4.5G connectivity and 5G in cellular communications (wireless), another breakthrough made by stakeholders is to look at opportunities that still have potential, an example of one of the strategies implemented is the development of technology based on fiber optic - fiber to the home (FTH) so that customers can get services fiber optic-based internet and digital TV and the benefits of telecommunications operator companies do not require paying frequency rentals,

another example that can be obtained is the use of cloud computing, so companies no longer need to have their own data center for data storage. Such innovations are used to get better performance.

Industry 4.0 Adoption has no effect on business performance, illustrating that the development of Industry 4.0 cannot have a quick impact on performance, it is necessary that the use of Industry 4.0 technology does not guarantee performance where there are still other factors such as strategy and penetration in the market, facing competition, how to respond to input and get new customers where the role of non-technology industry 4.0 is also a consideration of performance. Apart from that, using Industry 4.0 inappropriately or not according to needs will only be a burden on the company's profits due to wrong investments or implementing the wrong strategy in implementing technology. Currently, the impact of currency weakening is very pronounced due to geopolitical pressures, so this is a challenge for organizations in telecommunications support companies.

Digital transformation capability has a positive and significant effect on business performance, illustrating that telecommunications support companies need to automate several areas to work effectively. An example in this case is the use of ERP (enterprise resources planning), which replaces the manual supply chain process with an automation system that can carry out end 2 end processes to procure, where in this case without using automation tools the process will occur in the supply area. chain, contract process and financial operations stand alone and do not integrate with each other, this is certainly inefficient and time consuming, so with automation you can save more on the use of tasks per hour which can be replaced with system automation.

Employee engagement influences business performance, describing telecommunication supporting companies as a strong factor that supports organizational performance. Dedication and loyalty in flying hours and working over a long period of time makes it easy for companies to carry out business strategies because they have workers who have knowledge, experience and skills, the time period makes employees able to adapt to every change in telecommunications technology, sincerity working in the telecommunications industry is still an option for workers and we also see that telecommunications supporting companies have high concern for employees by providing information, training opportunities, giving awards and recognition, so that the loyalty of workers with qualified knowledge contributes to performance in the company telecommunications support,

Corporate Entrepreneurship has a positive and significant effect on business performance with the mediation of employee engagement, illustrating that there is an indication that there has been integration between stakeholders, employees and performance based on initiative and innovation, a culture of sense of ownership and responsibility, motivation and overall satisfaction, both from stakeholders and employees, reducing negative sentiment related to employee turnover and retention, opportunities given by stakeholders to employees, both in terms of career paths, getting training and increasing knowledge in the field of technology and the telecommunications industry is still seen as an industry that is still good at facing current challenges. pandemic (the use of internet capacity and the rapid increase in the number of customers and the birth of the e-commerce industry at home), relatively stable in dealing with geopolitical issues and company

strategies in facing competition, which in general is still at a healthy stage because each of them plays in the footprint area and in accordance with the competence and expertise of telecommunications support companies.

Industry 4.0 Adoption has a positive and significant effect on business performance with the mediation of employee engagement, illustrating that the correct use of Industry 4.0 can help company performance and minimize mistakes from employees. Renewable technology provides space for employees to adapt to technology and develop new skills so that it will have an impact at all levels. careers in telecommunications companies and workers in telecommunications support companies experience development in terms of practice in the field, understanding of problems and becoming more expert, so that employee skills with the support of industry 4.0 technology help answer what customers want.

Digital transformation capability has no effect on business performance with the mediation of employee engagement, illustrating that the use and implementation of digital transformation can answer needs or problems in the organization or find solutions from technological innovation, but the role of workers who support performance is a separate role, in this research it has been answered that in companies Telecommunications each contributes to organizational performance but is not supported if employees act as mediators because their respective contributions are separate parts. Skills, dedication, and loyalty support company performance, while digital transformation supports organizational performance only as tools to support performance.

Research regarding how to understand Industry 4.0 and Digital transformation is in line with the government's plans to achieve equality throughout the region, so research is needed in the future regarding equal distribution of technology from Industry 4.0. This research is only centered in the city of Jakarta, so it is necessary to carry out national research in all regions in Indonesia so that the number of respondents can be increased to produce more accurate research. The use of the variables studied only includes 5 variables, namely corporate entrepreneurship, Industry 4.0 Adoption, Digital Transformation capability, Employee Engagement and Business Performance, so that they can be developed with the addition of new variables. Increasingly rapid changes and dynamics require adaptation, complexity (technology investment, R&D development (research & development), for this reason the role of stakeholders (entrepreneurship) is needed in formulating a vision and direction of performance, building a positive work culture, and emphasizing that the role of human resources must be Become a partner in technological development. In line with technological development, the role of preparing skills also needs to be carried out during learning in the formal and non-formal education sectors so that human resources can adapt when the organization carries out industrial technology transformation 4.0. The findings in related research are that in hypothesis 3 digital transformation capability has no influence on employee engagement, hypothesis 5, industry 4.0 adoption has no influence on business performance and hypothesis 10, that digital transformation capability has no influence on business performance with the mediation of employee engagement is not in line with innovation theory. Drucker (1985) in innovation theory believes that entrepreneurship and innovation are related, how to develop and be able to take advantage, in line with innovation transformation into the digital era of industry 4.0. This can be to strengthen and provide positive

contributions related to achieving performance, evaluating efficient ways of running a business, to be more focused, knowing threats in competition, making improvisation and convenience for all elements, having all the resources that can be able to answer customer needs, encouraging performance and sustainable business.

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