

## DIGITALIZATION ON GENDER BASED JOB OPPORTUNITIES IN INDRAGIRI HILIR THROUGH DIGITAL TRANSFORMATION

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**Abstract:** This study analyzes the impact of digitalization on gender-based employment opportunities in Indragiri Hilir, Indonesia. Digital transformation provides new opportunities, but it also has the potential to create a gap in employment opportunities between men and women. With a quantitative approach and SEM (Structural Equation Modeling) analysis, data was collected through a questionnaire distributed to 150 respondents from various sectors. The population of this study includes all workers involved in the digitalization process in Indragiri Hilir, with a randomly and balanced sample between men and women. The results of the study show that digitalization provides greater opportunities for men than women, with education, digital skills, and access to technology being obstacles for women. Female respondents also reported social stigma and challenges that affect their participation in the digital sector. This study provides new insights into gender dynamics in the context of digitalization in underserved areas and recommends further research to explore policy interventions that can improve women's access to digital employment opportunities.

**Keywords:** Digitalization, Opportunity, Gender, Transformation

### 1. Introduction

Digitalization has become a major driver of economic and social transformation in various parts of the world, including Indonesia. In Indragiri Hilir, this process affects various aspects of life, including the job market. While digitalization offers new opportunities and efficiencies, questions arise about its impact on gender-based employment opportunities.

Job Opportunity Rate (TKK) data from 2021 to 2023 shows a stark difference between men and women. In 2021, male kindergarten reached 97.62%, while female kindergarten was only 96.83%. Although male kindergarten increased to 99.33% in 2022, female kindergarten actually decreased to 96.66%. In 2023, male kindergarten decreased again to 98.96%, while female kindergarten stagnated at 96.71%. The overall average TKK (male and female) showed a figure of 97.22% in 2021, increased to 98.50% in 2022, but decreased again to 97.83% in 2023.

**Tabel 1. Job Opportunity Rate (TKK)**

| Gender        | Job Opportunity Rate (TKK) (Percent) |       |       |
|---------------|--------------------------------------|-------|-------|
|               | 2021                                 | 2022  | 2023  |
| Man           | 97,62                                | 99,33 | 98,96 |
| Woman         | 96,83                                | 97,99 | 96,71 |
| Male + Female | 97,22                                | 98,50 | 97,83 |

**Source:** BPS Data Indragiri Hilir, 2024

Existing data shows that although male kindergarten remains high, female kindergarten has not experienced a significant increase, and even tends to be stagnant. This indicates that there is a gap that needs to be addressed and makes this issue even more urgent to be researched. This gap not only has an impact on the family economy, but can also widen social inequality in society. The gender gap in access and participation in the job market is a relevant issue in Indonesia. Previous research has shown that women often face various barriers, such as lack of access to education and training, as well as social stigma that limits their involvement in certain sectors. In the context of digitalization, this challenge may be exacerbated, where digital skills and access to technology are key factors in obtaining jobs.

Several previous studies have examined similar topics. First, research by (Sari, 2020) found that digitalization provides a competitive advantage for men, while women are often hampered by a lack of digital skills. Second, a study by (Rahman, A., & Fatimah, 2021) shows that women in remote areas face greater challenges in accessing job opportunities in the digital sector. Third, research by (Agustina, 2022) highlights the role of education and training in reducing the gender gap, by emphasizing the need for more inclusive programs for women.

Through this research, it is hoped that the factors that affect employment opportunities based on gender can be explored more deeply and to find sustainable solutions in reducing the gender gap. It is hoped that this research will not only provide insight into the impact of digitalization, but also offer recommendations to increase women's participation in the world of work in the digital era. Therefore, this research is very important to understand the dynamics of employment opportunities in Indragiri Hilir and to formulate appropriate policy measures to support gender equality in the job market. By identifying the barriers faced by women, it is hoped that more effective strategies can be created to increase their access to existing job opportunities. And the formulation of the problem in this study is Does Digitalization affect Gender-Based Job Opportunities in Indragiri Hilir Through Digital Transformation?

## **2. Literature Review**

### **Digitalization**

Digitization is the process of converting information and data from physical format to digital format. This includes the use of digital technology to collect, store, and process data, making it easier to access, analyze, and distribute information (Kurniawan, 2022). Digitalization includes various aspects, such as: Digital Data: Converting documents, images, and sound into digital formats (e.g., PDF, JPEG, MP3). Business Processes: Automating manual processes using software and digital tools (e.g., project management systems, accounting software). (Liu, 2023) stated Digital Services: The provision of services through digital platforms, such as e-commerce, online banking, and telemedicine, digitization is part of the process of converting information, processes, and services into digital formats to increase efficiency, accessibility, and productivity. Digitalization allows the use of information technology to facilitate data interaction and management. Digitization is the process of converting information and processes from physical format to digital format. This process includes the use of information and communication technology to collect, store, process, and distribute data efficiently (Wen, 2022). Digitalization aims to improve operational efficiency, information accessibility, and facilitate interaction between users and systems. Digitalization can involve automating work processes, developing digital platforms for customer service, and utilizing analytical data for better decision-making (Luo, 2023). Digitalization also encourages innovation in business models and creates new opportunities in various sectors, such as e-commerce, online education,

and digital health services, Digitalization Indicators: Access to digital technology, Frequency of use of digital devices, Types of digital technology used (Sari, 2020).

### **Digital Transformation**

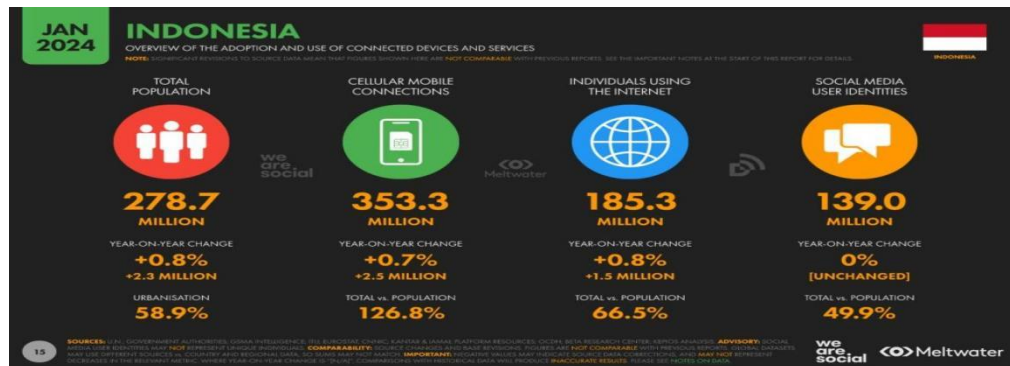
Transformation refers to the process of significant or profound change in a system, structure, or entity. Transformation can occur in a variety of contexts, including business, technology, social, and environmental, and typically involves major shifts in the way we work, mindsets, or methods. (Dąbrowska, 2022) says transformation is "a significant change in the way organizations operate and interact with the external environment, it includes adapting to changing markets, technologies, and evolving customer needs. Technology transformation refers to the process by which organizations adopt and integrate new technologies to improve operational efficiency, innovation, and customer experience. This process involves changes not only in the technology used, but also in business processes and organizational culture (Dutta, 2020). Transformation is a process of change that includes significant modifications or updates to structures, systems, or processes within an organization, community, or individual that aims to increase effectiveness, efficiency, and relevance in facing new challenges. Digital Transformation Indicators: Technology Adoption Rate: Percentage of new technology usage within the organization or community, Changes in Business Processes: Number and types of processes that have been updated or changed to improve performance, Stakeholder Satisfaction: Surveys to measure the satisfaction of employees, customers, or communities with the changes that have been made, Financial Performance: Analysis of increased revenue or cost reductions as a result of the transformation applied (Kotter, 1996)

### **Gender Based Job Opportunities**

Opportunities must be carefully identified and evaluated to determine if they are worth pursuing. Success in capitalizing on opportunities often depends on skill, resources, and speed in decision-making. An opportunity is a situation or condition that provides the possibility to achieve a goal, improve performance, or gain a profit in a certain context. In the business world, opportunities are often associated with opportunities to develop new products, enter new markets, or improve operational efficiency (Sell, 2020). (Osinga, 2022) states that opportunity is "a condition that allows a person to benefit from a particular situation. Opportunity is closely related to the ability of an individual or organization to take advantage of the situation at hand to achieve a goal. Gender is a concept that refers to the roles, behaviors, activities, and attributes that are considered appropriate for individuals based on the social categories of men and women. In contrast to gender, which biologically refers to physical differences between men and women (such as reproductive organs and chromosomes), gender is more social and cultural. (Kimmel, 2000) defines gender as "a concept that encapsulates identity, roles, and behaviors expected based on gender," highlighting the social expectations that govern gender interactions. (Connell, 2005), a sociologist, defines gender as "a social relationship that creates a difference between men and women." Connell emphasized the importance of understanding gender in the context of power, domination, and social hierarchy. (Butler, 1990), a philosopher and gender theorist, stated that gender is "the social performance produced by the actions and behaviors of individuals." In Butler's view, gender is not a fixed identity, but rather a construct that continues to be built through social interaction. Indicators: Behavioral Variation: The degree of behavioral variation that is considered appropriate for both men and women in a society. Gender Role Change: The number of individuals who violate traditional gender norms

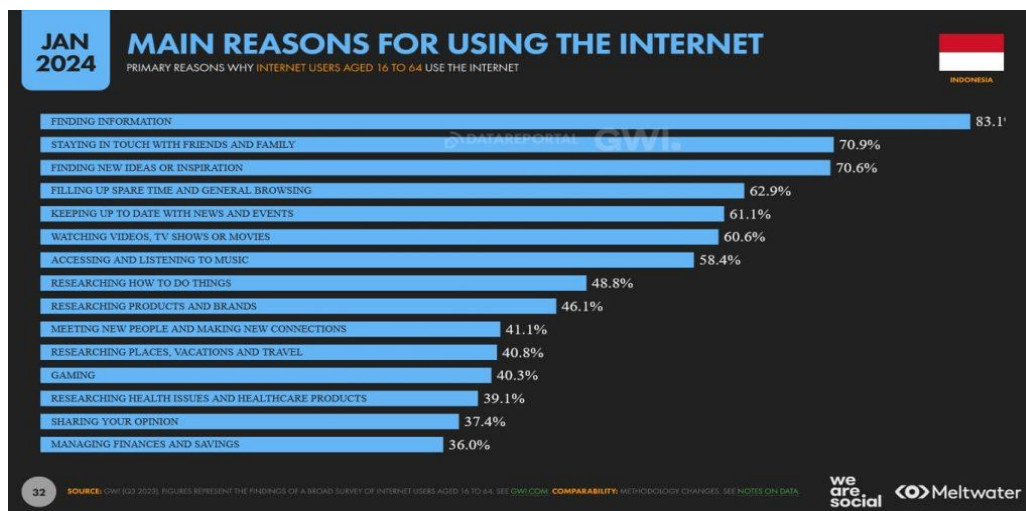
in everyday life. Critical Awareness: The level of public understanding of gender constructs and how this affects behaviors and expectations.

By the beginning of 2024, the number of internet users in Indonesia has reached 79.5% or 221.6 million people. The use of the number of mobile connections has increased by 3.6% since the Covid-19 pandemic.



**Figure 1: Internet and Social Media User Data Trends in Indonesia in 2024**  
Source: <https://andi.link/hootsuite-we-are-social-data-digital-indonesia-2024/>

Top Reasons People in Indonesia Use the Internet (In 2024) Internet users in Indonesia have several main reasons for their internet use. Here are the main reasons for internet users in Indonesia:



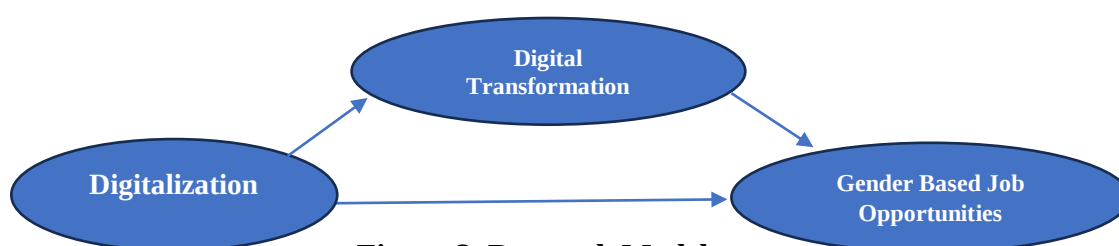
**Figure 2: Top Reasons People in Indonesia Use the Internet (2024)**  
Sources: <https://andi.link/hootsuite-we-are-social-data-digital-indonesia-2024/>

Based on the data above, it can be estimated that the average use of digitalization of the Indonesian population in 2024 will be around 68.2%. This figure is obtained from the average percentage of internet usage for the various purposes mentioned. The high penetration of mobile and internet shows great potential for the development of digital services in Indonesia. Diverse internet usage behaviors (from information search to entertainment) indicate that Indonesian society is increasingly digitally literate. This data also indicates the importance of digital literacy and online security, given the high dependence of society on digital technology.

### Research Model

This model describes the relationship between Digitalization (X), Digital Transformation (M), and Gender-Based Job Opportunities (Y). Digitalization directly affects Gender-Based Job Opportunities, but can also have an indirect impact through Digital Transformation which functions as a mediating variable. In this model, Digital Transformation mediates the relationship between digitalization and job opportunities, where changes in technology and business processes driven by digitalization open up more inclusive and equal employment opportunities for men and women. Therefore, Digital Transformation plays a key role in ensuring that digitalization results in gender-based access to equitable job opportunities.

The research model is shown in Figure 3.



**Figure 3. Research Model**

Here are three hypotheses that fit the model:

Hypothesis 1 (H1): Digitalization has an effect on Gender Based Job Opportunities.

Hypothesis 2 (H2): Digitalization has an effect on Digital Transformation.

Hypothesis 3 (H3): Digital Transformation mediates the relationship between Digitalization and Gender Based Job Opportunities.

Hipotesis 4 (H4): Digitalization is related to Gender Based Job Opportunities through Digital Transformation

### 3. Method

#### Research design

This study uses a quantitative approach with the method of distributing questionnaires to respondents to analyze the impact of digitalization on gender based employment opportunities in Indragiri Hilir, Indonesia. This approach was chosen to measure the relationship between the variables studied through the collection of data from a representative number of respondents.

#### Population and Sample

The population of this study is all workers involved in the digitalization process in Indragiri Hilir, both from the formal and informal sectors. This population consists of male and female workers from various industrial sectors who are exposed to digital transformation. The sample was taken randomly using simple random sampling from the population (Sugiyono, 2014), with the criterion that workers have been involved or affected by digitalization in their work environment. The researcher ensured that the sample consisted of 150 respondents with a balanced distribution between men and women to provide a more representative picture. This sample consists of workers of different ages, education levels, and job sectors.

## Variable Measurement

Each variable is measured by distributing questionnaires to respondents using a 5-point Likert scale (where 1-5 indicates strongly disagree to agree with the statements submitted strongly). Digitization of Indicators: (1) Access to digital technology, (2) Frequency of use of digital devices, (3) Types of digital technology used (Sari, 2020) Indicator Gender Based Job Opportunities: (1) Variasi Perilaku, (2) Perubahan Peran Gender, (3) Kesadaran Kritis (Butler, 1990), Digital Transformation Indicators: (1) Technology Adoption Rate, (2) Changes in Business Processes, (3) Stakeholder Satisfaction, , (4) Financial Performance (Kotter, 1996).

## Data Analysis

The data collected from the questionnaire will be analyzed using the Structural Equation Modeling (SEM) method with the help of statistical software such as SmartPLS. The data analysis process includes Validity and Reliability Test: Using Confirmatory Factor Analysis (CFA) to test the validity of the construct as well as reliability testing with Cronbach's Alpha to ensure the consistency of the instrument. SEM analysis: SEM is used to test structural models and determine the relationship between independent, mediating, and dependent variables. SEM also makes it possible to evaluate the direct and indirect effects of digitalization on gender-based employment opportunities. Hypothesis Test: The hypothesis regarding the impact of digitalization on gender-based employment opportunities will be tested through the estimation of SEM parameters.

## 4. Result and Discussion

### Characteristics of Respondents

**Tabel 2. Characteristics of Respondents**

| Characteristics | Category    | Sum | Pesentase |
|-----------------|-------------|-----|-----------|
| Gender          | Male        | 75  | 50%       |
|                 | Woman       | 75  | 50%       |
| Age             | 18-25 years | 45  | 30%       |
|                 | 26-35 years | 60  | 40%       |
|                 | 36-45 years | 30  | 20%       |
|                 | >45 years   | 15  | 10%       |
| Education       | High School | 45  | 30%       |
|                 | D3          | 30  | 20%       |
|                 | S1          | 60  | 40%       |
|                 | S2/S3       | 15  | 10%       |
| Sector Work     | Government  | 30  | 20%       |
|                 | Private     | 45  | 30%       |
|                 | UMKM        | 45  | 30%       |
|                 | Freelance   | 30  | 20%       |
| Experience Work | <2 year     | 30  | 20%       |
|                 | 2-5 year    | 60  | 40%       |
|                 | 6-10 year   | 45  | 30%       |
|                 | >10 year    | 15  | 10%       |

### Source: Processed Data, 2024

The study involved 150 respondents with a balanced division, 75 men and 75 women, ensuring gender balance in the analysis. The respondents' educational backgrounds are diverse, ranging from high school graduates to masters, which reflects the variation in educational levels. Respondents worked in five main sectors: agriculture, manufacturing, services, education, and health, representing various economic sectors in Indragiri Hilir. Respondents' work experience

ranged from 1 to 15 years, allowing for analysis related to the role of experience in gender-based job opportunities. These characteristics provide a solid basis for exploring the impact of digitalization on gender-based job opportunities.

### Validity and Reliability Test Results

**Tabel 3. Validity and Reliability Test Results**

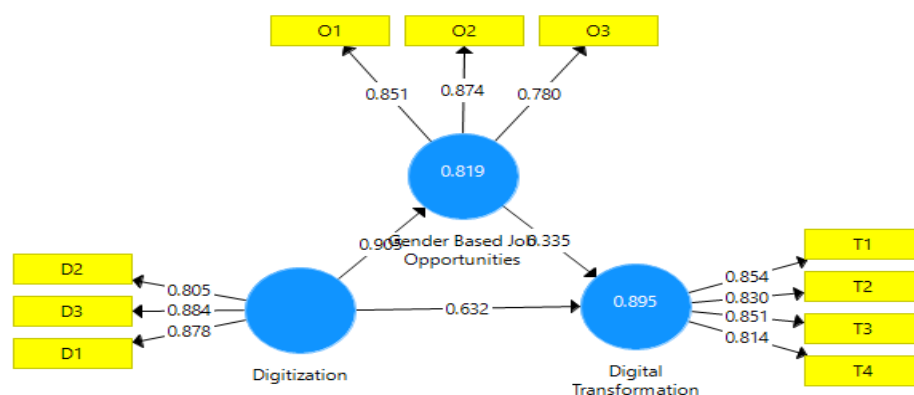
| Variable                           | Indicator                           | Correlation<br>( $>0,30$ ) | Validity | Cronbach's<br>Alpha | Reliability |
|------------------------------------|-------------------------------------|----------------------------|----------|---------------------|-------------|
| Digitization                       | Access to digital technology        | 0,633                      | Valid    | 0,858               | Realibility |
|                                    | Frequency of use of digital devices | 0,670                      | Valid    |                     |             |
|                                    | Types of digital technology used    | 0,699                      | Valid    |                     |             |
| Digital<br>Transformation          | Opportunity Identification          | 0,557                      | Valid    | 0,817               | Realibility |
|                                    | Risk Analysis                       | 1,000                      | Valid    |                     |             |
|                                    | Readiness to Adapt                  | 0,564                      | Valid    |                     |             |
|                                    | Financial Performance               | 0,568                      | Valid    |                     |             |
| Gender Based Job<br>Opportunities. | Variasi Perilaku                    | 0,626                      | Valid    | 0,783               | Realibility |
|                                    | Perubahan Peran Gender              | 0,616                      | Valid    |                     |             |
|                                    | Kesadaran Kritis                    | 0,620                      | Valid    |                     |             |

**Source: Processed Data, 2024**

The research instruments for measuring Digitalization, Digital Transformation, and Gender-Based Job Opportunities have proven to be valid and reliable, with the correlation of indicators above 0.30 and Cronbach's Alpha values ranging from 0.783 to 0.858, indicating high reliability.

### PLS-SEM Model Test Results

The results of the PLS Structural Equation Modeling (SEM) test in this study are shown in Figure 4.



**Figure 4. PLS-SEM Model Test Results**

Source: Processed Data, 2024

Based on the results displayed in the diagram, it shows that Digitalization has a strong influence on Digital Transformation, with a path coefficient of 0.632. This shows that digitalization plays a significant role in driving the digital transformation process in an organization or environment. Digital Transformation also has a great influence on Gender-Based Job Opportunities, with a

coefficient value of 0.335. This indicates that digital transformation is able to create more equitable and inclusive employment opportunities based on gender. Digitalization directly affects Gender-Based Job Opportunities, with a coefficient value of 0.905. This shows that digitalization plays a very important role in creating more open access to job opportunities for various genders. Each indicator that supports these variables has a fairly high loading factor value, all above 0.7. This shows that these indicators are valid and strong enough in explaining the variables being measured.

**Tabel 4. PLS-SEM Model Test Results**

| Variable                       | Indicators                          | Loading Factor > 0.60 | Composite Reliability (CR) > 0.70 | Average Variance Extracted (AVE) > 0.5 | R Square | Q Square > 0 |
|--------------------------------|-------------------------------------|-----------------------|-----------------------------------|----------------------------------------|----------|--------------|
| Digitization                   | Access to digital technology        | 0,805                 | 0,904                             | 0,702                                  | 0,895    | 0,693        |
|                                | Frequency of use of digital devices | 0,884                 |                                   |                                        |          |              |
|                                | Types of digital technology used    | 0,878                 |                                   |                                        |          |              |
| Digital Transformation         | Opportunity Identification          | 0,854                 | 0,892                             | 0,734                                  | 0,819    | 0,194        |
|                                | Risk Analysis                       | 0,830                 |                                   |                                        |          |              |
|                                | Readiness to Adapt                  | 0,851                 |                                   |                                        |          |              |
|                                | Financial Performance               | 0,814                 |                                   |                                        |          |              |
| Gender Based Job Opportunities | Variasi Perilaku                    | 0,851                 | 0,874                             | 0,699                                  | 0,819    | 0,194        |
|                                | Perubahan Peran Gender              | 0,874                 |                                   |                                        |          |              |
|                                | Kesadaran Kritis                    | 0,780                 |                                   |                                        |          |              |

**Source: Processed Data, 2024**

The results of the analysis show that Digitalization, Digital Transformation, and Gender-Based Job Opportunities have excellent validity and reliability, with all indicators meeting the criteria of loading factor, Composite Reliability (CR), and Average Variance Extracted (AVE). This model also has strong predictive power.

## Hypothesis Test Results

**Tabel 5. Hypothesis Test Results**

| Hypothesis | Variable Relationship                                                                      | Original Sample (O) | T Statistics | P Values | Result      |
|------------|--------------------------------------------------------------------------------------------|---------------------|--------------|----------|-------------|
| <b>H1</b>  | Digitalization -> Gender Based Job Opportunities.                                          | 0,632               | 10,643       | 0,000    | Significant |
| <b>H2</b>  | Digitalisasi -> Transformasi Digital                                                       | 0,905               | 48,893       | 0,000    | Significant |
| <b>H3</b>  | Transformasi Digital mediate Digitalisasi -> Gender-Based Job Opportunities.               | 0,335               | 5,549        | 0,000    | Significant |
| <b>H4</b>  | Digitalization is related to Gender Based Job Opportunities through Digital Transformation | 0,303               | 5,428        | 0,000    | Significant |

**Source: Processed Data, 2024**

The results of the study show that digitalization plays a significant role in increasing gender-based job opportunities with a coefficient of 0.632 (T-Value: 10.643, P-Value: 0.000), which means that the higher the digitalization, the greater the more gender-based equal job opportunities. In addition, digitalization also has a strong effect on digital transformation (coefficient 0.905, T-Value: 48.893, P-Value: 0.000), making it a major factor in driving digital

transformation. Digital transformation itself acts as a mediator in the relationship between digitalization and gender-based job opportunities, with a mediation coefficient of 0.335 (T-Value: 5.549, P-Value: 0.000). These results show that digitalization and digital transformation contribute significantly to creating more equitable employment opportunities based on gendered strong evidence that digital transformation plays an important role in this relationship. Digital transformation mediates the relationship between digitalization and gender-based job opportunities with a mediation coefficient of 0.335, so that every increase in digitalization will increase gender-based job opportunities through digital transformation. The direct effect of digitalization is also significant (coefficient 0.303), with T-Value 5.549 and 5.428, and P-Value 0.000. This shows that digital transformation has an important role in strengthening the relationship between digitalization and gender-based job opportunities.

## **Discussion**

### **Digitalization on Gender-Based Job Opportunities**

Digitalization has been a key driver in creating job opportunities, especially for previously marginalized groups, including women. Research shows that digitalization allows for better access to information and job opportunities through digital platforms. Previous researchers (Kurniawan, 2022) emphasized that digitization makes it easier to collect and distribute data, which is important for job search. (Liu, 2023) shows that automation of business processes by software can reduce barriers for women in entering the job market. With increasing access to digital technology, more diverse job opportunities can be explored by individuals in Indragiri Hilir.

### **Digital Transformation on Gender Based Job Opportunities**

Digital transformation creates a more inclusive environment for gender in the world of work. (Dąbrowska, 2022) states that organizations that successfully adapt to new technologies can increase efficiency and innovation, which contributes to the creation of new job opportunities. (Dutta, 2020) added that this transformation also involves changing the organizational culture that can support the role of women. With the adoption of new technologies and the renewal of business processes, job opportunities for women in Indragiri Hilir can increase, creating gender equity in job access.

### **Gender Based Job Opportunities**

Gender-based job opportunities are greatly influenced by how society understands and addresses gender roles. According to (Kimmel, 2000) and (Connell, 2005), traditional gender norms often hinder women's participation in certain sectors. However, with digitalization and digital transformation, opportunities for women to pursue careers in fields that were previously dominated by men can increase. Previous research has shown that digital technologies allow women to access training and resources that can improve their skills (Sell, 2020). Indicators such as behavioral variation and critical awareness can be used to measure these changes.

Overall, digitalization and digital transformation have great potential to increase gender-based job opportunities in Indragiri Hilir. By utilizing technology, society can overcome the barriers experienced by women, creating a more inclusive and equitable environment. This research needs to continue to explore the specific impact of digitalization on gender-based employment opportunities and identify the challenges that remain.

## 5. Conclusions

This study shows that there is a significant gap in the Employment Opportunity Rate (TKK) between men and women in Indragiri Hilir from 2021 to 2023. Although male kindergartens have increased, women's kindergartens have stagnated, which reflects the barriers faced by women in accessing job opportunities, especially in the digital era. Factors such as a lack of digital skills, limited access to education, and challenges in remote areas contribute to this inequality. Therefore, it is important to formulate policies that support gender equality in the job market. Research Limitations: Limited Data: This research relies on data that may not cover all aspects that affect TKK, such as broader social and cultural factors. Geographic Focus: This study was conducted only in Indragiri Hilir, so the results may not be generalized to other regions in Indonesia. Methodology: The methods used in this study may have limitations in measuring complex variables, such as digital skills and access to education.

**Implications:** The results of this study have important implications for policymakers and stakeholders in designing more inclusive programs to increase women's participation in the job market. Policies that support digital skills training and better access to education for women in remote areas can help reduce the gender gap.

**Recommendations for Future Researchers:** Further researchers should further explore the factors that affect women's TKK in other regions, as well as understand the impact of the policies implemented. Using qualitative methods to gain deeper insights into women's experiences in accessing job opportunities. Conduct long-term analyses to monitor changes in TKK and the impact of interventions undertaken to improve gender equality in the job market. Thus, this research is expected to be the basis for further efforts in creating a more equitable and inclusive work environment for all genders.

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## References

- Agustina, R. (2022). The Role of Education and Training in Reducing Gender Gaps in the Digital Workforce. *Jurnal Pendidikan Dan Gender*, 9(3), 200-215.
- Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. Routledge.
- Connell, R. W. (2005). *Gender*. Polity Press.
- Dąbrowska, J. (2022). Digital transformation, for better or worse: a critical multi-level research agenda. *R and D Management*, 52(5), 930–954. <https://doi.org/10.1111/radm.12531>
- Dutta, G. (2020). Digital transformation priorities of India's discrete manufacturing SMEs – a conceptual study in perspective of Industry 4.0. *Competitiveness Review*, 289–314. <https://doi.org/10.1108/CR-03-2019-0031>
- Kimmel, M. (2000). *Guyland: The Perilous World Where Boys Become Men*. HarperCollins.
- Kotter, J. P. (1996). *Leading Change*. Harvard Business Review Press.

- Kurniawan, T. A. (2022). Unlocking digital technologies for waste recycling in Industry 4.0 era: A transformation towards a digitalization-based circular economy in Indonesia. *Journal of Cleaner Production*, 357. <https://doi.org/10.1016/j.jclepro.2022.131911>
- Liu, X. (2023). Firms' digitalization in manufacturing and the structure and direction of green innovation. *Journal of Environmental Management*, 335. <https://doi.org/10.1016/j.jenvman.2023.117525>
- Luo, S. (2023). Digitalization and sustainable development: How could digital economy development improve green innovation in China? *Business Strategy and the Environment*, 32(4), 1847–1871. <https://doi.org/10.1002/bse.3223>
- Osinga, S. A. (2022). Big data in agriculture: Between opportunity and solution. *Agricultural Systems*, 195. <https://doi.org/10.1016/j.agry.2021.103298>
- Rahman, A., & Fatimah, S. (2021). Challenges Faced by Women in Remote Areas in Accessing Digital Job Opportunities. *Jurnal Ekonomi Dan Pembangunan*, 12(1), 25-34.
- Sari, D. (2020). The Competitive Advantage of Digitalization for Men: Gender Disparities in Digital Skills. *Jurnal Teknologi Dan Bisnis*, 15(2), 101-110.
- Sell, S. K. (2020). What COVID-19 Reveals About Twenty-First Century Capitalism: Adversity and Opportunity. *Development (Basingstoke)*, 63(2), 150–156. <https://doi.org/10.1057/s41301-020-00263-z>
- Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Wen, H. (2022). Digitalization, competition strategy and corporate innovation: Evidence from Chinese manufacturing listed companies. *International Review of Financial Analysis*, 82. <https://doi.org/10.1016/j.irfa.2022.102166>