

HUMAN CAPITAL INVESTMENT IN THE DIGITAL ERA: THE IMPACT OF COMPUTER TRAINING ON LABOR MARKET ABSORPTION OF PRIMA DATA LPK GRADUATES

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ABSTRACT

The development of digital era demands Human Resources (HR) possess expert computer skills and digital literacy to compete in the job market. Computer training is one way to invest in human capital that is considered capable of improving the technical skills and work readiness of graduates from LPK Prima Data. The purpose of this study is to analyze how many percentage graduates who have been absorbed into the job market in 2022-2025, considering market needs and demands, identifying the profiles and competencies most needed by the digital industry as well as finding out the strategies implemented by LPK Prima Data in preparing future workers for the digital industry. This study uses mixed methods with an explanatory sequential design. Data sources were obtained through questionnaires, in-depth interviews with industry representatives and LPK Prima Data representative, and narrative surveys of several graduates, both those who are already working and those who are not yet working. The results of this study indicate a significant positive impact on labor absorption, contributing 55.3%, and this study shows a deviation from the linear relationship (Sig. = 0.024).

INTRODUCTION

Indonesia is currently facing a major challenge in realizing the vision of "Golden Indonesia 2045". One of the main issues is increasing competitiveness through sustainable economic growth and improving the quality of human resources in the future. Until now, the implementation of the concept of Industrial Revolution 4.0 and Society 5.0 has not been running optimally. The development process is still in the development stage, especially in increasing business productivity. As a developing country, Indonesia has a great opportunity to carry out transformation, especially through education system reform as the main foundation in preparing quality human resources. To achieve this, it is necessary to strengthen various competencies such as leadership, language skills, technical skills, and digital literacy. In addition, people need to have access to broad, accurate, and open information through internet technology, which also supports critical thinking, problem-solving, and creativity. (Amarullah et al., 2022). In the era of globalization, technological advancements are moving rapidly, and the ability to use information technology and computers will become a fundamental skill from education and work to communication. Computer and digital skills not only facilitate access to information but also open up opportunities for change and high productivity. The workplace now requires workers to be able to use the latest technological devices and adapt to their environment (Christian, A., & Wijayah, K., 2025).

Digital technology has reshaped patterns of human interaction and creates broad access to information, while simultaneously reducing barriers related to distance, space, and time. In this context, the digital era also generates new prospects in employment (Agustina et al., 2023). This

transformation is marked by the growing allocation of resources to Information and Communication Technology (ICT) and its widespread application across economic sectors (Ningsih, S., R., 2024).

In the Fourth Industrial Revolution, governments are required to strengthen education systems that can produce competent and globally competitive human resources. Strategic adaptation is essential, particularly through strengthening human capital via education and training, which plays a central role in forming a skilled workforce (Santoso et al., 2024). The preparation of qualified human resources depends on the optimal function of educational and training institutions, supported by collaboration with industry, the private sector, and professional bodies (Iqbalsyah et al., 2025). This research is grounded in Human Capital Theory proposed by Becker (1993), which views education and training as investments that improve knowledge, skills, and productivity, ultimately influencing income and employment opportunities. In the digital context, computer training represents a crucial investment because it equips individuals with competencies relevant to labor market demands. Thus, this theory underpins the analysis of how training at LPK Prima Data contributes to graduate employment outcomes (Feriyanto, 2020).

Education is the key to developing high-quality human resources, capable of having a significant impact on labor absorption and work performance (Saraswati, B. D., Krisnawati, Y. D., & Adhitya, D., 2022). Labor market absorption can serve as an indicator to assess the success of regional development; it plays a supporting role in economic development in developing countries like Indonesia, aiming to achieve equitable economic development (Gani, H., et al., 2023).

The education sector notes that computer training is generally in high demand among the public. This training is popular because the learning process is easy to follow. The availability of computer training opens up significant opportunities for individuals who wish to learn and enhance their skills. This aligns with Law No. 20 of 2003 on the National Education System, Article 26, Paragraph (2), which states that computer training serves to advance students' potential by focusing on knowledge and functional skills, as well as improving social attitudes and character. Computer training, as a form of non-formal education, aims to provide effective abilities and skills. Trained individuals will find it easier to adapt to the changing times (Allam, 2025).

The positive and negative impacts of digital technology advancements on employment include the creation of job opportunities; however, the negative impact is that digital technology is taking over certain job roles, and to survive in the job market, workers must be able to acquire new skills (Alayida, N., F., et al., 2023). Jobs in the administrative and office sectors represent a major shift in the world of work. The ability to use office software such as Microsoft Office has become one of the most essential skills for today's workforce (Rohmawati, D. N., & Dewi, U., 2025).

Prima Data Vocational Training Institute (LPK) is one of the computer training institutions in Padang, West Sumatra. Located in the city center at Jalan S. Parman No. 189 (across from the police traffic post) in Ulak Karang, Padang, LPK Prima Data was established in 1997. LPK Prima Data operates as a vocational training institution in Indonesia offering computer training and digital skills programs to produce a workforce ready for the job market. The training programs offered include regular courses such as Office Applications, 3-month vocational training (PKT), 6-month vocational training (PKT), and others. The number of registrants at LPK Prima Data has increased from 2022 to 2025. This has raised awareness among the people of West Sumatra, particularly in the city of Padang, regarding education in the digital age. The public has begun seeking new skills in computerization to improve the quality of human resources in the city of Padang. Current changes in globalization and technology present opportunities for job seekers. Therefore, the author is interested in conducting research at LPK Prima Data titled "Investment in Human Capital in the Digital Age: The Impact of Computer Training on the Employment of LPK Prima Data Graduates."

This study was conducted to examine the extent to which computer training influences the employment outcomes of graduates from LPK Prima Data over the past three years, during which their absorption into the labor market has remained relatively limited. While previous research has generally focused on digital literacy at the macro level, studies specifically examining the digital profiles and competencies of training institution graduates, particularly in relation to the needs of local industries in Padang, remain limited. To address this gap, the present study adopts a mixed-methods approach to gain a more comprehensive understanding of the effectiveness of computer training in improving graduates' employment prospects.

The study is guided by the following questions: What has been the employment rate of LPK Prima Data graduates in the labor market from 2022 to 2025? What profiles and competencies are most sought after by the digital industry? And what strategies does LPK Prima Data use to prepare

prospective workers for the digital sector? Accordingly, this study aims to analyze the proportion of graduates absorbed into the labor market between 2022 and 2025, identify market demands and workforce requirements, determine the profiles and competencies needed by industry, and examine the strategies implemented by LPK Prima Data in preparing prospective workers for the digital industry.

The theoretical contribution of this research lies in its potential to enrich human capital theory in the context of the digital era. Its practical benefits may also be relevant to various stakeholders. For example, the findings from LPK Prima Data may be used as a reference for evaluating training program development and performance assessment. In addition, local governments may use the results as input for labor policy formulation. The scope of this study is limited to examining the labor market absorption of graduates who completed computer training at LPK Prima Data and does not include graduates from other computer training institutions in Padang.

This study also has several limitations related to primary data collection. The researcher was able to distribute questionnaires only to graduates who could be contacted and conduct interviews with one industry representative, one representative from LPK Prima Data, and six graduates, consisting of four employed and two unemployed participants. Therefore, the findings should be interpreted cautiously.

Literature Review

Human Capital

Becker (1993) states that human capital is formed through investments in education, training, and work experience that contribute to higher economic productivity. Human capital includes a range of elements such as skills, knowledge, expertise, attitudes, and health. In the digital era, investment in human capital becomes increasingly important because technological progress requires a workforce that is digitally literate, competent, and able to adapt to rapid technological change (Arifin, A., S., 2023).

Human capital can help meet the needs of modern industries by developing both technical skills (hard skills), such as computer operation and data processing, and non-technical skills (soft skills), such as motivation, work ethic, and communication. Ningrum, H., n.d. emphasizes that quality education serves as the main foundation for developing human resources that are capable, creative, innovative, adaptable, and competitive in the Industry 4.0 era.

In this context, workforce training institutions play an important role in developing human capital, particularly by strengthening participants' computer skills. This role is expected to improve employability, increase productivity, and enhance the competitiveness of graduates in the digital labor market.

Computer Training

According to Law No. 20 of 2003 on the National Education System (Sisdiknas), Chapter VI, Article 26, Paragraph (4), non-formal education includes various educational pathways such as training centers, training institutions, study groups, community learning centers, religious study groups, and other similar units. Within this framework, computer training is classified as one form of non-formal education and is generally supervised by the education office. Non-formal education plays an important role in expanding public access to practical competencies that can be applied directly in the workplace (Allam, 2025). In the context of digital transformation, computer training has become increasingly relevant because many industrial sectors have integrated digital technologies into their operational and business processes.

The topics covered generally range from basic computer operations, office applications, the internet, and information systems to the use of cloud-based applications. The success of the training can enhance participants' digital competencies and provide significant opportunities to enter a highly technology-driven job market.

Labor Absorption

Labor absorption measures the market's capacity to absorb the available labor force. According to Law No. 13 of 2003, Chapter I, Article 1, Paragraph 2, a worker is defined as any person capable of performing work that produces goods or services in a manner that meets the needs of individuals and society (Saragi, D., R., R., & Sihombing, 2024).

Industries in the digital era are undergoing significant changes in terms of workforce skill requirements. New jobs require digital skills, while routine tasks continue to be automated. Therefore, graduates of training institutions with computer skills are more likely to have high employment prospects, particularly in the administrative, digital services, and creative industries sectors (Christian, A., & Wijayah, K., 2025).

Method

The author conducted this study using a mixed-methods approach with an explanatory sequential design. This design was used to address gaps in the quantitative data and then to provide a deeper explanation of the findings using qualitative data. This study was conducted at the Prima Data Vocational Training Center (LPK). The data sources used were primary data, which were obtained through the distribution of questionnaires, in-depth interviews with representatives from industrial companies and the LPK, as well as narrative surveys of several graduates who were already employed and those who were not yet employed.

Data collection utilized quantitative methods through the distribution of a five-point Likert scale questionnaire to graduates from the 2022–2025 cohorts, with a sample size of 130 respondents selected via simple random sampling; qualitative data were obtained from interviews conducted using purposive sampling (Sugiyono, 2022).

Hipotesis alternatif (Ha) dalam penelitian ini menyatakan bahwa pelatihan komputer memiliki dampak positif terhadap kesempatan kerja lulusan LPK Prima Data. Penulis menganalisis data kuantitatif menggunakan perangkat lunak IBM SPSS Statistics 27, dengan menerapkan analisis deskriptif dan uji regresi sederhana. Sementara itu, data kualitatif dianalisis menggunakan analisis tematik. Pendekatan campuran (mixed-methods) dalam penelitian ini berguna untuk memvalidasi data kuantitatif dan kualitatif, sehingga menghasilkan temuan yang komprehensif dan dapat diandalkan (Wijaya, M., dkk., 2025).

Results and Discussion

Research Findings

This study was conducted among graduates of the Prima Data Vocational Training Institute (LPK) during the period of 2022 to 2025. A total of 130 respondents were selected through simple random sampling. The following table presents the respondents' profiles.

Table 1. Profile, Category, Number, and Percentage of Respondents Who Are Vocational Training Center Graduates, 2022–2025

Profile	Category	Number of Respondents	Percentage
Gender	Male	43	43%
	Female	87	87%
	Total	130	130%
Type of Training	Office Applications / Practical Office Advanced (Microsoft Office)	100	100%
	AutoCAD	0	0%
	Cost Estimation	1	1%
	Accounting and Tax Reporting	1	1%
	Web Programming	1	1%
	3-Month Training Program	10	10%
	6-Month Training Program	17	17%
	Total	130	130%
Year of Graduation	2022	6	6%
	2023	32	32%
	2024	40	40%
	2025	52	52%

	Total	130	130%
Employment Status	Employed	84	84%
	Unemployed	42	42%
	Self-Employed	4	4%
	Total	130	130%

Source: Completed questionnaire

Notes:

- Based on the respondents' gender profile, most respondents were female, representing 87%, whereas male respondents accounted for 43%.
- In terms of training type, the Office Applications / Practical Office Advanced (Microsoft Office) course was the most frequently selected program, followed by the 6-month Computer Training Program (PKT) and then the 3-month Computer Training Program (PKT).
- With regard to graduation year, interest in computer training at LPK Prima Data has shown a steady increase over the past three years.
- Regarding employment status, 84% of respondents reported that they were employed, 42% were unemployed, and 4% were self-employed.

The descriptive findings indicate that 64.6% of graduates have entered the workforce, while the remaining 35.4% have not yet obtained employment, with some choosing to continue their education. The table below presents the descriptive frequency results:

Table 2. Statistics on Valid Employment Status

Statistics	Employment Status	
	N	Valid
	Missing	0

Source: IBM SPSS Statistics 27

Table 3. Descriptive Results

Employment Status		
	N	Percentage
1	84	64.6%
2	42	32.3%
3	4	3.1%

Source: IBM SPSS Statistics 27

Notes:

N : Total Respondents

1 : Employed

2 : Unemployed

3 : Self-employed

Before conducting hypothesis testing, the research instruments were subjected to a reliability test to determine the consistency of the measures used. The following table presents the results of the reliability analysis.

Table 4. Reliability of Variable X (Computer Training)

Reliability Statistics	
Cronbach's Alpha	N of Items
.881	8

Source: IBM SPSS Statistics 27

Table 5. Reliability of Variable Y (Labor Absorption)

Reliability Statistics	
Cronbach's Alpha	N of Items

The results of the reliability test show a high degree of internal consistency. The Computer Training variable (X) obtained a Cronbach's alpha value of 0.881, while the Labor Absorption variable (Y) recorded a Cronbach's alpha value of 0.897. Since both values exceed the commonly accepted threshold of 0.70, the instruments used in this study may be considered reliable. Subsequently, a simple linear regression analysis was conducted to examine the alternative hypothesis (Ha) concerning the effect of computer training on labor absorption.

Table. 6 Model Summary Analysis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.744 ^a	.553	.550	3.20114	2.175

a. Predictors: (Constant), TOTAL_X

b. Dependent Variable: TOTAL_Y

Source: IBM SPSS Statistics 27

Based on the results presented in Table 6, the Model Summary indicates that the correlation coefficient (R) of 0.744 reflects a strong and positive relationship between the two variables. In addition, the coefficient of determination (R^2) of 0.553 shows that 55.3% of the variation in Labor Absorption can be explained by the quality of the computer training provided by LPK Prima Data. The remaining 44.7% is attributable to other factors not included in this regression model.

Table. 7 ANOVA

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1625.614	1	1625.614	158.638	<.000 ^b
	Residual	1311.655	128	10.247		
	Total	2937.269	129			

a. Dependent Variable: TOTAL_Y

b. Predictors: (Constant), TOTAL_X

Source: IBM SPSS Statistics 27

The results presented in Table 7 indicate that the ANOVA test supports these findings, as shown by an F-value of 158.638 and a significance level of 0.000 (Sig. < 0.05). Based on these results, it may be concluded that computer training has a significant positive effect on the employment outcomes of graduates from LPK Prima Data; therefore, the alternative hypothesis (Ha) is accepted. Nevertheless, the influence of computer training, while substantial at 55.3%, does not fully explain graduate employment outcomes. The remaining 44.7% is likely attributable to other non-technical factors not included in the model. This interpretation is further supported by the Linearity Test results, which indicate a significant deviation from a linear relationship, with a significance value of 0.024 (Sig. < 0.05). The results of the linearity test are presented in the following table:

Table 8. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
TOTAL_Y	Between Groups	(Combined)	1884.343	15	125.623	13.601	.000
*		Linearity	1625.614	1	1625.614	176.005	.000
TOTAL_X		Deviation from Linearity	258.728	14	18.481	2.001	.024
	Within Groups		1052.926	114	9.236		
	Total		2937.269	129			

Source: IBM SPSS Statistics 27

The observed non-linear deviation encouraged a qualitative inquiry aimed at identifying non-technical factors and structural strategies associated with graduate outcomes. Through in-depth

interviews with industry representatives and leaders of computer training institutions, as well as narrative surveys of graduates, this study identified three central themes for discussion: the consistency of theoretical foundations and their relevance, the limited development of soft skills in relation to non-linear deviation (Sig. 0.024), and the structural strategies employed by computer training institutions in strengthening link and match.

Discussion

Consistency of the Theoretical Framework and Relevance

The quantitative findings indicating that computer training has a 55.3% positive impact on employment have been verified and reinforced by qualitative data. These findings are based on the training center's consistent provision of relevant basic skills. Industry representatives (Jbross Komputer) acknowledge that "vocational school graduates have the necessary IT fundamentals, so all that's left is to hone their skills" and that they already "know the basics," making them easy to guide. This expertise is confirmed by graduates currently in the workforce, who specifically mention that "Microsoft Office modules such as Excel and Word are used most frequently every day" as the tools "most frequently used" in their daily work.

This consistency reflects LPK Prima Data's strategy of investing in quality, as emphasized by the Head of LPK (Irvan Kudus) through a commitment to the quality of instructors and facilities, as stated: "LPK consistently updates its computer facilities, ranging from Intel Pentium I-7 with 512 MB RAM and a 512 GB SSD, 19-inch monitors, as well as 52-inch Smart LED TVs for learning, and instructors are required to be certified to ensure the quality of the material." Consequently, this 55.3% impact is achieved, as LPK has successfully provided the foundational technical skills (IT Generalists) that are immediately needed and recognized by the job market.

Shortcomings in Soft Skills and Non-Linear Deviations (Sig. = 0.024)

Although computer training has a positive impact of 55.3%, the findings indicate a deviation from a linear relationship (Sig. = 0.024). This deviation suggests that the remaining 44.7% is influenced by other factors related to labor absorption, particularly limitations in non-technical or soft skills. To better understand these limitations, a literature review on workforce readiness was conducted.

The qualitative findings show that vocational training centers (LPKs) have been relatively successful in developing hard skills; however, notable gaps remain in the cultivation of soft skills. This is supported by industry representatives from Jbross Komputer, who consistently point to motivational and attitudinal challenges, stating that "these LPK students are technically competent, but lack initiative" among graduates. Similar concerns are reflected in the responses of two groups of graduates. Employed graduates acknowledged that they initially faced difficulties in their workplaces, especially in managing time and demonstrating initiative, as illustrated by the statement, "At first, I struggled to manage my work time and adapt to the work environment." Meanwhile, graduates who are not yet employed acknowledge deficiencies in soft skills, citing "failing in job interviews due to a lack of confidence and an inability to answer questions about work ethics" as the main obstacles during interviews. The implication of this study is that vocational training institutions must strengthen the disciplinary aspects of learning to effectively address this technical curriculum.

Strategic Structure of Computer Training Institutions in Link and Match

Computer training institutions address efforts to bridge the soft skills gap and meet industry needs based on the "link and match" principle, and LPK Prima Data implements strategic measures. The efforts led by the Head of LPK (Irvan Kudus) maximize the institution's focus on motivation, discipline, and ethics. The Head of the training institution stated: "The institution will provide motivation and personal development and apply them directly to students to maintain discipline and good ethics, as well as teach them how to work properly. The vision and mission in learning are always applied—not just in computer practice alone." This is a strategy to address the gap in work attitudes.

The systemic challenges encountered by the institution appear to be shaped by two main factors: the mindset of graduates and limited collaboration from the industrial sector. The head of the vocational training center noted that "The challenge we face is how to change the mindset of the younger generation, and the fact that the industry does not provide detailed feedback on the reasons for rejecting graduates." This suggests that workforce absorption is influenced not only by the quality

of training provided, but also by the presence of a supportive industrial environment and the individual's mental preparedness.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The computer training program at LPK Prima Data showed a significant and positive relationship with employment outcomes, accounting for 55.3% of the observed variation ($R^2 = 0.553$). This study used a mixed-methods approach. LPK Prima Data appears to play an important role in equipping learners with general technical competencies in information technology, and its graduates are directly recognized by industry. Nevertheless, the deviation observed (Sig. = 0.024) suggests that other factors may also contribute to the results, particularly non-technical skills, which explain the remaining 44.7% of the variation. These factors include work ethic, initiative, and time management, all of which deserve further attention from both LPK Prima Data and industry partners. In response, LPK Prima Data has implemented appropriate strategies, including improvements in instructor quality and learning facilities, and its long-term plan to establish a D-1 Computer Training program reflects a continued effort to strengthen its training provision.

Recommendations

Based on this study, it is recommended that LPK Prima Data further enhance the learning experience in the Microsoft Excel module and incorporate soft skills modules—such as work ethics, problem-solving, communication, and structured time management—into the curriculum in a meaningful and substantial manner. For the government and industry, it is recommended to establish more effective link-and-match mechanisms and to foster greater industry transparency in sharing information regarding workforce needs. For future researchers, conducting a similar study with a focus on new qualitative variables regarding soft skills or perhaps explaining the remaining 44.7% of non-technical skills.

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