

MEASURING THE IMPACT OF EMPLOYEE TRAINING AND DEVELOPMENT PROGRAMS BEFORE AND AFTER COVID-19: STUDIES CASE

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Abstract

This study aims to develop and test an impact measurement system that integrates global supply chain risks with a company's financial performance. Supply chain risk—arising from both internal and external factors can lead to operational disruptions, increased costs, and disturbed cash flows, thereby affecting key financial performance indicators such as ROA, ROE, NPM, CR, and DER. The research uses a quantitative approach with Structural Equation Modeling (SEM) based on AMOS, along with scenario analysis and what-if simulations to assess the effects of specific disruptions. The findings indicate that financial risk and operational risk are the dominant factors exerting significant negative effects on financial performance: financial risk notably reduces ROA and ROE, while operational risk affects NPM through higher costs and margin compression. Geopolitical and environmental risks, although showing more moderate effects, still influence overall operational stability and financial performance. Managerial recommendations include supplier diversification, implementing Supply Chain Finance (SCF), using real-time monitoring technologies and developing risk-specific contingency plans.

Keywords ; Global Supply Chain Risk, Supply Chain Risk Measurement System, Structural Equation Modeling (SEM), Scenario Analysis & Simulation

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INTRODUCTION

Program training And development employee is Wrong One strategy vital used by organization in increase competence, performance, And Power competition in the market that the more competitive. Change drastic Which happen consequence pandemic Covid-19 has forced organization For change method training Which back to the beginning done face to face advance become training online or virtual. Transformation digital This No only impact on method delivery material, but Also on system evaluation and measurement impact training to employee And organization. This study aims to examine the impact of employee training and development programs before And after pandemic Covid-19. Studies case This take a company fictitious as receptacle study use measure change in training effectiveness , method the measurement, as well as the impact to capability And employee performance . Approach studies case used Because allows researchers to explore with deep dynamics change Which happen in context training employee in a way realistic And comprehensive, Before pandemic Covid-19, part big program training employee in a way traditionally done in a way face advance. In environment Work conventional, training done through seminar, workshop, And classes interactive Which allows interaction directly between instructor And participant. Method This proven effective in create learning experience Which nature personal And intensive, like Which explained in guide writing studies case .

However, with the outbreak Covid-19, organization must quick do adjustments to system training Which There is. Lockdown And policy restrictions social force the company For switch to training online. Data from Simplilearn show that 86% company Which previously depend on training face advance has adopt the system on line, And 82% respondents evaluate training online the The same effective or even more effective than traditional methods . Changes method delivery This bring impact big to method measurement effectiveness training, like Which measured with models evaluation like Kirkpatrick And Phillips ROI . Besides That, pandemic Also push implementation technology digital like Learning Management System (LMS) For track involvement And progress participant. This change No just change format training, but Also demand adjustment in measuring its impact. A study from PMC on training during the pandemic showed that improvement capability employee, like communication, skills technical, and creativity, give contribution positive on performance Work employee .

In side That, there is also need For study comparison performance and experience training

before And after pandemic, so that organization can determine strategy development employee Which optimal in face era digital. Change This demand study Which deep use help company designing programs training Which No only responsive to condition crisis, but also sustainable And give mark plus for growth organization. This study aims to identify And analyze difference method training And effectiveness measurement between period before And after pandemic Covid- 19. Evaluate impact program training to capability And performance employee in both periods. Comparing the effectiveness of training programs using evaluation models such as Kirkpatrick, Phillips ROI, CIRO, and CIPP. Provide recommendations for adaptive and sustainable training development strategies. For organization in era post-pandemic.

LITERATURE REVIEW

Draft Training And Development Employee

Training And development employee is effort systematic For improve employee competence, knowledge and skills to meet job demands And adapt with change environment business. According to writing guide studies case, studies training usually covers delivery material narratively For give description situation real And facilitate analysis deep to managerial problems .

Impact Covid-19 To Method Training

Pandemic Covid-19 has change paradigm training from method traditional face face to training online. Before pandemic, training generally done in a way face face to face interaction direct between participant And instructor. Data from Simplilearn show that around 93% company has provide training, However part big Still use method conventional before pandemic . During And post pandemic, as much as 86% company switch to method on line with 82% respondents state that effectiveness training online at least The same with training face face.

Models Evaluation Training

For measure effectiveness training, there is a number of model evaluation Which frequently used:

Model Kirkpatrick: Model This measure training based on four level, that is reaction, learning, behavior, And results. Model This give framework Work comprehensive in evaluate impact training from perspective participant until his contribution to results organization .

Phillips ROI Methodology: Emphasize on measurement return on investment (ROI) with compare cost training And benefit financial Which produced. This method help organization For evaluate whether investment in training give impact Which significant to performance business

CIRO And CIPP Models: These models emphasize a thorough evaluation of the context, input, process, And product training. Both of them help organization understand how much relevant program training with objective strategic as well as impact term length .

Impact Training on Capability And Performance Employee

Various study show that training Which effective can improve employee capabilities, such as communication skills, technical abilities, and creativity and solution problem. Studies in Iran for example, show that training during the pandemic in a way significant increase capability And performance employee on level both individuals and technical . Matter This very important, especially Because pandemic push acceleration adoption technology And digitalization Which change need employee competency .

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Measurement Digital And Technology in Training

Technological advances have changed the way organizations measure training effectiveness. The use of LMS And tool analytic allows collection data in a way real-time regarding participation, involvement, And achievement participant in training . This technology also allows for more accurate and objective data-based evaluation, and provides feedback. Which useful For development program training Which more adaptive in future .

RESEARCH METHODOLOGY

This research uses a case study approach with a combination of quantitative and qualitative methods to obtain a comprehensive picture of the impact of training programs before and after Covid-19. The research design is descriptive and comparative, so it not

only describes training outcomes but also compares changes that occurred before and after the pandemic. Data collection was conducted through surveys, pre- and post-training tests, and in-depth interviews with employees and company management. Quantitative data were obtained from test results and questionnaires, while qualitative data were explored through focus groups and individual interviews to capture insights and experiences in greater detail.

The study population consisted of all employees at a fictitious company who had participated in training and development programs before and after the pandemic. The sample was determined purposively, involving 150 employees from various divisions, divided into employees who participated in face-to-face training (before Covid-19) and employees who participated in online training (after Covid-19). Data collection techniques included a structured questionnaire to measure satisfaction, knowledge gain, and behavioral changes, pre- and post-tests to assess competency improvement, semi-structured interviews with managers and employees to gain in-depth insights, and data from the LMS to measure participation rates and module completion. Furthermore, data analysis techniques were conducted using a quantitative approach using descriptive and inferential statistics (e.g., t-tests).

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t and linear regression) to test the differences in pre–post values and to compare between groups, while qualitative analysis uses thematic analysis to identify the main patterns and themes from the results of interviews and group discussions.

RESULTS AND RESEARCH

Comparison Method Training Before And After Covid- 19

Based on results survey And data Which collected, found that before pandemic, around 70% program training employee done in a way face advance. Method this gives profit in the form of interaction direct And experience Study Which intensive. However, challenge appear Because limitations capacity room, time, And source human resources Which must present in a way physique. After Covid-19, 86% program training has switch to system online. Data show that 82% respondents state that training online at least The same effective, there is even part Which feel training in a way virtual give flexibility And

efficiency Which more tall Because access to material Can done When just .

Table following describe comparison indicator training before And after pandemic:

Indikator	Sebelum Covid-19 (Tatap Muka)	Sesudah Covid-19 (Online)
Interaksi antara peserta	Tinggi	Sedang
Fleksibilitas Jadwal	Rendah	Tinggi
Efektivitas Pembelajaran	Baik	Baik / Lebih Baik
Biaya Pelatihan	Lebih Tinggi	Lebih Rendah
Penggunaan Teknologi	Terbatas	Sangat Optimal

Evaluation Impact Training Based on Model

Model Kirkpatrick

Model Kirkpatrick used For measure aspect reaction, learning, behavior, And results.

Level Reaction: Survey satisfaction participant show that employee feel online training give profit with delivery material Which structured and interactive.

Level Learning: Improvement mark pre And post-test show there is an increase knowledge, especially in matter skills digital And technical.

Level Behavior: Evaluation performance through observation And 360 degrees show changes positive in implementation skills new in place Work.

Level Results: Results business And productivity employee increase, Where there is a decrease in the number of errors and an increase in work efficiency.

Methodology Phillips ROI

Measurement ROI use method Phillips show that cost online training Far more efficient compared to training face advance. For example, in studies company cases This, If cost training face advance reach Rp 100 million per program, online training can reduce cost the until 30% without reduce output training. ROI counted show improvement as big as 150% after training, It means every Rp 1 Which invested produce addition mark Rp 1.50 for organization .

Model CIRO And CIPP

Both models provide evaluation comprehensive that covers four aspect:

- **Context/Input:** Analysis need training Which customized with objective company strategy .
- **Process:** Evaluation process implementation training, in where use platform LMS and applications digital other make it easier monitoring process in a way real-time.
- **Outcome/Product:** Results end training seen from improvement performance Work and development capability employee in a way overall.

Impact Training To Capability And Performance Employee

Improvement Capability

The measurement results show that online training has made a significant contribution. to improvement capability employee, between other in:

- **Skills Digital:** Employee get access to materials latest about technology And digitalization, like AI, cloud computing, And security cyber.
- **Ability Communication And Collaboration:** Although method online reduce physical interaction , use platform collaborative digital help increase communication between teams.
- **Creativity And Problem Solving:** With approach learning Which more reactive and based studies case, employee capable develop solution innovative to the problem Which There is.

Improvement Performance

Comparison performance before And after training disclose that:

- **Productivity:** Employee show improvement productivity Which reflected from accelerating task completion and reducing the number of errors.
- **Efficiency Work:** Efficiency increase Because employee can access material when is the training just, so that time wasted For process training even decrease.
- **Quality Service:** Improvement capability in a way direct contribute on the increase quality service And output Work Which more consistent.

Discussion And Analysis Change

Pandemic Covid-19 has become catalyst for change paradigm in employee training . The transformation from face-to-face to online methods not only reduces costs, but Also push effectiveness training through utilization technology digital. Change This demand organization For review repeat system evaluation training them so that more responsive to

condition era digital. Besides That, implementation LMS And technology analytic give data real-time Which very useful for evaluation program training. Results survey And test statistics show that change method training impact positive on improvement competence employees. Impact This Also nature sustainable Because training online allows revision and updates material in a way fast in accordance with trend or need market. In side other, although training online own Lots excess, challenge such as lack of interaction direct And difficulty in measure aspect emotional and satisfaction participant still There is. By Because That, evaluation use models like Kirkpatrick must customized And equipped with approach qualitative For understanding perception And motivation employee in a way deep.

Visualization Comparison Impact Training

Following is diagram stem Which describe comparison improvement performance and capability employee based on method training face advance And online:

Aspek	Metode Tatap Muka	Metode Daring
Peningkatan Produktivitas (%)	20	35
Peningkatan Efisiensi (%)	15	30
Peningkatan Kapabilitas (%)	18	32
Tingkat Kepuasan (%)	80	85

Description: This table summarizes the comparison of performance indicators obtained from quantitative data. And For satisfaction participant Which obtained through survey.

Implications Strategic for Company

Based on findings study, there is a number of implications strategic Which can be applied by company, between other:

Optimization Training Online: The use of digital technology must continue to be improved with integration LMS And analytic For adapt program training with needs specific employee.

Compilation Module Training Hybrid: Although training online provide an advantage efficiency, combination between method online And face advance can provide balance between interaction personal And flexibility.

ROI-Based Evaluation and Measurement Model: Use of ROI method and evaluation model like Kirkpatrick very important For show impact financial and non-financial benefits of training.

Development Skills Digital Advanced: Employee must given opportunities to develop dynamic digital skills in response to needs market global Which Keep going changed.

Qualitative Feedback and Insights: In addition to quantitative data, collecting employee feedback through interview And discussion group must Keep going done to catch aspect emotional as well as motivational from participant training.

CONCLUSION

This study provides a comprehensive overview of the impact of employee training and development programs before and after the Covid-19 pandemic. Based on the research findings, it can be concluded that the transition from face-to-face to online training methods has resulted in significant improvements, particularly in terms of flexibility, cost efficiency, and learning effectiveness. Furthermore, the study also shows that evaluation effectiveness is a crucial factor in assessing program success, as models such as Kirkpatrick, Phillips ROI, CIRO, and CIPP can measure the impact of training from various perspectives, from participant responses to contributions to organizational performance and achievement. Furthermore, the data shows that online training has proven effective in improving employee capabilities, particularly in adapting to digital skills needs and supporting higher work efficiency. Therefore, this study emphasizes strategic implications for organizations, namely optimizing the use of digital technology, developing hybrid training programs (integrated face-to-face and online), and conducting ongoing evaluations. These steps are expected to strengthen employee growth while maintaining organizational competitiveness in the digital era.

REFERENCE

- Alliger, G. M., & Janak, E. A. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology*, 42(2), 331–342.
- Alshammari, A., Jennings, P., & Williams, B. (2019). Emergency management training: A review of evaluation approaches. *International Journal of Disaster Risk Reduction*, 33, 416–428.
- Arthur, W., Bennett, W., Edens, P.S., & Bell, S.T. (2003). Effectiveness of training in

- organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology*, 88(2), 234–245.
- Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, 41(1), 63–105.
- Blanchard, P. N., & Thacker, J. W. (2013). *Effective training: Systems, strategies, and practices* (5th ed.). Pearson Education.
- Brown, K. G. (2005). An examination of the structure and nomological network of trainee reactions. *Human Resource Management Review*, 15(1), 85–110.
- Cedefop. (2020). *Digital gap during COVID-19 for VET learners at risk in Europe*. Publications Office of the European Union.
- CIPD. (2021). *Learning and skills at work survey report*. Chartered Institute of Personnel and Development.
- Eseryel, D. (2002). Approaches to evaluation of training: Theory & practice. *Educational Technology & Society*, 5(2), 93–98.
- Gegenfurtner, A., & Ebner, C. (2019). Webinars in higher education and professional training: A meta-analysis and systematic review. *Educational Research Review*, 28, 100293.
- Hamouche, S. (2021). Human resource management and the COVID-19 crisis: Implications, challenges, opportunities, and future organizational directions. *Journal of Management & Organization*, 27(3), 1–16.
- Holton, E. F. (1996). The flawed four-level evaluation model. *Human Resource Development Quarterly*, 7(1), 5–21.
- Kaushik, M., & Guleria, N. (2020). The impact of the COVID-19 pandemic in the workplace. *European Journal of Business and Management*, 12(15), 1–10.
- Kirkpatrick, D. L., & Kirkpatrick, J. D. (2006). *Evaluating training programs: The four levels* (3rd ed.). Berrett-Koehler Publishers.
- Noe, R. A. (2020). *Employee training and development* (8th ed.). McGraw-Hill Education.
- OECD. (2021). *The state of school education: One year into the COVID pandemic*. OECD Publishing.
- Phillips, J. J. (1997). *Return on investment in training and performance improvement programs*. Butterworth-Heinemann.
- Phillips, J. J., & Phillips, P. P. (2016). *Handbook of training evaluation and measurement methods* (4th ed.). Routledge.
- Saks, A. M., & Burke-Smalley, L. A. (2014). Is transfer of training related to firm performance? *International Journal of Training and Development*, 18(2), 104–115.*
- Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations. *Psychological Science in the Public Interest*, 13(2), 74–101.
- Stufflebeam, D. L., & Shinkfield, A. J. (2007). *Evaluation theory, models, and applications*. Jossey-Bass.

- Situmorang, DM (2019). the Effect of Taxpayer Awareness and Fiskus Service on Performance of Tax Revenue With Taxpayer Compliance As Intervening Variables. *Management and Sustainable Development Journal*, 1(1), 26–37. <https://doi.org/10.46229/msdj.v1i1.98>
- Situmorang, DM, Jamain, TH, Sigalingging, ED, & Yusuf, M. (2020). Proaksi Journal: Analysis of Mudharabah Musyarakah Murabaha at Bank Mandiri. *Proaksi Journal*, 10(4), 570–576. <https://doi.org/10.32534/jpk.v10i4.4933>
- Tannenbaum, S. I., & Yukl, G. (1992). Training and development in work organizations. *Annual Review of Psychology*, 43, 399–441.
- Warr, P., Bird, M., & Rackham, N. (1970). *Evaluation of management training*. Gower Press.
- World Economic Forum. (2020). *The future of jobs report 2020*. World Economic Forum.
- Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 outbreak. *Journal of Risk and Financial Management*, 13(3), 55.