



Human Resource Performance Indicators Based on Learning and Perspective Growth in the Balanced Scorecard Method

Helisia Margahana, Garaika

Management Study Program, STIE Trisna Negara, Sumatra Selatan, Indonesia

Abstract

Business organizations must have strong management skills to compete in today's market, one of which is the performance assessment. Because it analyses both financial and non-financial variables, the balanced scorecard is now a popular idea for performance assessment. The balanced scorecard is also used by the Human Resources Department of PT.ABC to visualize and translate strategy into operational objectives that support behavior and performance. Learning and progress is the most crucial view for HRD PT.ABC and it underpins all other thoughts. This research aims to assess the balanced scorecard learning and development viewpoint in Human Resources Department PT.ABC to build human capital. Based on these goals, the purpose of this study is to examine Human Resources Department PT.ABC human capital development activities. Although various issues were discovered, including a lot of administration, significant staff turnover, and inadequate fulfilment of succession prospects, the balanced scorecard learning and development perspective Human Resources Departement PT.ABC was able to enable the development of its human capital globally successfully.

Keyword: Balanced scorecard, learning and development perspective, human capital are some of the terms used in this article.

DOI Number: 10.14704/nq.2022.20.8.NQ44131

Neuro Quantology 2022; 20(8):1192-1201

1192

Introduction

Business organizations must have promising management talents in today's competitive environment. Performance evaluation is one of the management competencies in consideration. In most cases, financial measurements are used to evaluate performance. "Financial measures do not provide a real picture of the state of the business entity because they do not pay attention to other things outside of the financial side, for example, customers, which are an important focus for business entities, and employees, even though these two are the driving force of the business entity's activities," say Kaplan and Norton(Oloruntoba, 2010).

Hence, the balanced scorecard, abbreviated as Kaplan and Norton, first established BSC in 1992 in response to the shortcomings of financial assessment and the need for a comprehensive evaluation. BSC is a strategic approach and performance management system that enables businesses to turn their vision and plan into reality—handling tactical and operational issues(Rajakaruna et al., 2017). According to Kaplan and Norton, the BSC complements financial performance evaluation by integrating it with non-financial performance, allowing managers to see the firm from four different perspectives: financial, customer, internal process, and learning and development. The BSC represents the harmony between short and



long-term goals, financial and non-financial indicators, lagging and leading indicators, and external and internal performance views (Torrado & Barbosa-Póvoa, 2022).

The learning and development viewpoint is the emphasis of this study. Learning and progress are fundamental and vital viewpoint for encouraging the application of other views. The importance of linking intangible assets with company strategy is highlighted by the learning and development viewpoint. The aims and measures of three intangible asset components, namely human capital (HC), information capital (IC), and intellectual capital (IC), are included in this view (Yazdani et al., 2020).

Capital of the organization In the relationship between a learning and development viewpoint and HC will be discussed. This research will focus on performance, particularly HC, from the standpoint of learning and growth directly tied to account human understanding. According to Namvar et al., HC is at the centre of intellectual capital. The organization's position in the market relies to a considerable part on the quality of human resources in the company (Oktari et al., 2020). The longevity of the corporate entity, on the other hand, is dependent on HC management. Employee performance components in the BSC look at how well workers can perform and their happiness, retention, and productivity. The organization also keeps track of motivated personnel and their performance goals, which align with the firm's objectives. The BSC application from the formal learning and development viewpoint will enhance the business entity's overall performance; in this instance, it can also be claimed that the BSC implementation from the correct learning and development viewpoint would increase human performance (HC) (Shamout et al., 2021).

The BSC, which the XYZ Group controls, is the subject of this research. The official website of the XYZ Group includes a variety of management tools that may be employed, the most renowned of which is the BSC. The board of directors and all levels of management, from top to bottom, rely on the

BSC to assist them in participating in the corporate governance process more effectively and efficiently. As a holding company for other business entities, ABC has various business entities under its umbrella, one of which is PT.ABC is a holding company for different business organizations. Because of PT.ABC's critical position, this study is interested in learning more about the BSC used by PT.ABC, particularly the HRD division. The goal of this research is to assess the BSC that was employed at PT.ABC in Palembang to enhance the HC HRD (Patil et al., 2021).

Method

This study aims to conduct explanatory research so that the findings can be utilized to analyze the BSC learning and development viewpoint to boost HC in the HRD division. Because the outcomes of this study are intended to give feedback on how to enhance the BSC learning and development viewpoint to promote HC HRD, this research is considered applied research. As a result, the scope of this study is confined to the circumstances and events that occur in the HRD division of PT.ABC (Lima et al., 2022).

HRD PT.ABC, Palembang, is the subject of this study. It is one of the XYZ Group's holding company divisions, and its mission is to deliver the most extraordinary human resources for stakeholder satisfaction. The balanced scorecard data from HRD PT.ABC and XYZ management systems were utilized in this investigation. The data for this study were collected between 2020 and 2021.

The purpose of this research is to assess the BSC learning and development viewpoint used by HRD PT.ABC, Palembang. The assessment is based on information gathered via interviews with the head of PT.ABC HRD division, document analysis linked to the BSC HRD PT.ABC and XYZ management systems and observation of various HRD activities (Rabbani et al., 2014).

Result

The BSC HRD PT.ABC program as a whole has certain limitations. First, there is a lot of administration because all documents must be stored and controlled. For example, forms



must be available at any time to be audited. This is because BSC is still manual and uses Ms Excel (no special BSC software)(Pomponi et al., 2019). However, if you look at the XYZ Group, which is rapidly growing, management should be considering using BSC software. Second, because the BSC's implementation is quite complicated, with all of the activities that must be completed and all of the reports that must be produced, employees may refuse to deposit data, so strong employee commitment to the BSC's implementation must be built with the assistance of superiors. Establishing excellent two-way communication and integrating workers in the performance of BSC may help to create commitment(Nikkhoo et al., 2018).The four BSC views and some of their restrictions are explained in the following sections: A financial standpoint; The goal of effectively and efficiently managing internal financial resources has resulted in numerous financial objectives being met, including cost reduction, increased productivity, and increased activity utilization. Other purposes that haven't been accomplished, such as raising revenue and lowering risk, don't need to be reached since HRD operations solely include recruiting and training. There are no issues with this viewpoint(Nandi et al., 2021). The first goal, namely, the development of productive and competent Human Resources (HR), necessitates initiatives in the form of a "assessment employee program," which consists of three activities that focus on customer size indicators, namely customer satisfaction, because all three activities have the same goal of increasing customers' competitive advantage by providing customer satisfaction. From this standpoint, the second goal is to limit staff turnover. Initiatives such as "enhancing crucial moment program" were undertaken to attain the defined goals and aims. Employee happiness, employee loyalty, staff retention, and employee acquisition will all improve due to this(Moshtari et al., 2021).

However, various reasons for significant employee turnover were discovered after holding a question-and-answer session with many XYZ Group resource individuals. The

first element is management pressure; certain XYZ Group managers pressurize their employees to complete several duties so that the manager does not face punishment from the Board of Directors (BOD). The excessive workload is the second aspect to consider. Many employees at XYZ Group believe that the job is too demanding, that there is always more work to be done, and that overtime is common. Even though the employee is on leave, he or she must continue to work and deliver the outcomes of his or her efforts. The workload is excessive. Because the XYZ Group's aim is always more than 50%, another aspect is that BOD used to foot the bill for his family's medical care. Some individuals are still able to live as a result of this(Lu et al., 2018).

If workers are having issues with their manager, there should be a mechanism for them to convey their concerns or complaints to the BOD, such as through letter or email. If at all feasible, the BOD should pay close attention to the procedures taking place below. In the case of a high workload, the leader should not put undue pressure on workers; instead, the leader should encourage and infuse the XYZ Group principles in his subordinates as a whole so that they love doing their jobs.The first goal is to develop strategic skills to demonstrate an excellent internal process perspective because of HRD PT.ABCcan explore customer needs in productive and highly competent human resources by continuously improving the quality of training and putting the Individual Development Plan into action (IDP)(Kovács& Tatham, 2009).

PT.ABC's HRD competence has been represented to develop an effective career planning system, which investigates client demands in the form of productive and highly qualified human resources and high employee turnover. As a result, HRD PT.ABC strives to develop abundant and highly skilled human resources while also reducing high employee turnover by bringing succession prospects. On the other hand, the leaders have not wholly developed an effective career planning system based on the fulfilment of succession candidates. This might be because many



succession candidates are too preoccupied with their jobs to devote time to studying the special instruction they get. Leaders should pick someone who seems to have promise and is willing to learn or accept new information. The special education provided is more readily absorbed, and the successful candidate is ready to take over. In addition, successful candidates must be appropriately cared for and maintained (Mwambo et al., 2020).

Through the Individual Performance Plan (IPP), coaching, and counselling, the goal of strengthening the performance assessment system represents PT.ABC's HRD capacity, which investigates customer demands in productive and highly competent people resources (Li et al., 2022). The employee's IPP score will be assessed by the superior every three months via coaching and counselling; if the employee's IPP score is low, the special will investigate the reasons, offer motivation, and assign more responsibilities to the employee. Implementing IPP and coaching and counselling will almost surely increase employee performance, allowing for the growth of productive and highly qualified human resources (Goldschmidt & Kumar, 2016).

The goal of improving the reward and remuneration system reflects PT ABC's HRD capability, which investigates customer needs such as minimizing staff turnover to increase productivity initiatives for implementing competitive bonuses and remuneration through the socialization of healthy XYZ benefits, socialization of rewards for talented people, and socialization of continued Social Security registration, among other things. Nutritional advantages and further socialization of Jamsostek registration will undoubtedly help workers feel secured and safeguarded by corporate entities' health and social insurance, resulting in lower employee turnover. Employee turnover will probably be reduced due to the socialization of incentives for talented persons since workers will be recognized for their abilities and will be less likely to leave. While a review of the compensation structure, such as in response to an increase in the Regional Minimum Wage

(UMP), would undoubtedly make workers feel relieved since their pay would be adjusted in compliance with the UMP, it will also tend to minimize employee turnover (Kunz et al., 2014).

The capacity of HRD PT.ABC to investigate customer demands, notably decreasing the development of productive and highly qualified people resources, has been represented to adopt competency-based recruiting. One attempt to meet this need is to complete the Man Power Planning (MPP) requirement, which states that if an employee's departure has been planned, he must identify and train other workers to take his job (succession candidate). Because the replacement employee will have almost the same level of competency as the replaced employee, this will support productive and highly competent human resources (Mollah et al., 2018).

Through the participation of business entities in the government's Jamsostek program, which provides social security to employees so that employees feel protected and protected by the business entity, the goal of perfecting the legalization of labour laws and regulations has supported the customer's need for a reduction in high employee turnover. Compliance with the UMP, which guarantees that workers' welfare is assured with reasonable compensation, is another effort undertaken by PT.ABC. Increased liberalization of labour rules and regulations has been shown to minimize high employee turnover rates (Balki et al., 2020).

A view from the standpoint of learning and development, The learning and development perspective, according to HRD PT.ABC is the most significant and crucial viewpoint that underpins all other views. HRD PT.ABC believes that there are three points in the learning and development viewpoint, namely HC, informational capital, and organizational money, which will stimulate employee happiness, which will affect employee productivity and retention. This correct viewpoint fosters the creation of two goals, which will be described in further detail later (Malek & Desai, 2021).



1. In the HR department, develop employee capabilities.

Because to be a successful strategic partner for BOD, HRD PT.ABC must be able to enhance the competence of its members to create optimum performance for the XYZ Group. The goal of building employee competencies in the HR department is connected with the vision, mission, and HRD values of PT.ABC. The application of IDP HRD and the application of knowledge sharing are used to measure this goal. These metrics may help you achieve your goals while also meeting the parameters of a successful KPI. Targets have been created and are known by every HRD employee of PT.ABC to support the measures, allowing staff to adapt their performance to meet HRD objectives. However, since knowledge sharing is an essential part of the IDP HRD implementation measure, it should be included as a comprehensive activity(Govindan et al., 2020).

IDP HRD includes the acquisition of knowledge. Actions that promote the fulfilment of goals and goals are included in executing the HR increase competence program. We'll go over both of these topics in further depth in the following sections. The HRD IDP is being implemented. Superiors undertake IDP monitoring regarding implementing the items mentioned in the employee IDP every three months while coaching and advising subordinates. The HRD IDP is being implemented. Superiors undertake IDP monitoring regarding implementing the things mentioned in the employee IDP every three months while coaching and advising subsidiaries. If any issues are not executed, the superior will inquire about the difficulties encountered by the subordinates. The execution of this IDP has been guided by a spirit of learning and development, focusing on continual improvement and value creation. Employees' personal growth via the IDP program is founded on the belief that HC is a valuable asset. This demonstrates that the organization is planning forward by concentrating its efforts on staff development(Zavadskas& Turskis, 2010).

The IDP form includes numerous activities, such as attending industrial relations training, becoming a trainer, participating in a pilot project, and so forth. On the other hand, the following paragraph will concentrate on one of them, namely the pilot project(Wagner et al., 2021).

Each member of HRD PT. Each X must create and execute a pilot project with a free topic based on the content presented throughout the training for a certain length of time. The pilot project is developed, submitted for feedback or review, and finally presented after many months of deployment. Employees who complete the most successful pilot projects will get bonuses. Cooperative projects will be standardized and incorporated into the system, while destructive projects will be treated as learning opportunities for personnel. This collection of pilot project initiatives represents commercial entities' attempts to promote the growth of their HC. This behaviour demonstrates a great desire to learn and grow to expand HC business entities by making constant changes and adding value.

Knowledge sharing may be included in the HRD employee IDP, much as the pilot project. They are sharing knowledge in HRD PT.ABC is an activity in which participants exchange information gained from reading a book with other HRD participants every week. From the top down to the bottom up, learning will be shared at all levels in a set order. Following the sharing, the head of HRD may coach his subordinates based on his experience or expertise, for example, if the sharing material complies with the conditions/can be implemented in the company. There was also a question and answer session for the sharing and mentorship from the head of HRD. Sharing information takes the form of a presentation, with the presentation content being published to the XYZ Group Forum so that all workers may see it. Everyone in attendance at the weekly HRD will assess the information-sharing after the session. Employees who share their expertise the most effectively will be recognized every six months with a bonus.



This set of knowledge-sharing activities demonstrates the desire to keep learning. HRD PT.ABC is correct in including this activity in his agenda since it improves the presenter's understanding while also providing insight into the audience participating in the training. This illustrates the need of establishing HC for HRD PT.ABC via the use of a learning and development mindset that necessitates activities in which every HRD member must continually better themselves and provide value. Because to be a successful strategic partner for BOD, HRD PT.ABC must be able to produce programs that may increase the efficiency and effectiveness of its members' performance, the goal of establishing an integrated HRIS has been linked with the vision, mission, and HRD values of PT.ABC. This goal is assessed by the number of HRIS program developments, which is connected to the implementation of HRIS. The KPI meets the parameters of a good KPI and can support the goals that have been specified. The objective has a target to help support the measure.

Employees may alter their performance to fulfil HRD expectations if they are determined and known by every HRD employee of PT.ABC. Actions that help the attainment of goals and goals are included in the defined initiatives. The one-year plan includes several activities related to the addition of the "customer care" menu in HRIS go-lives, such as displaying complaints in the HRIS HRD pop-up, issuing leadtime targets for resolving complaints, and publishing HRIS complaint settlement reports, to meet these objectives and measures. The activity plan includes a complete overview of the HRIS goes live program implementation. So, although HC development is part of the significant viewpoint of HRD PT.ABC's learning and growth viewpoint is an aspect of informational capital, specifically the HRIS program.

Making HRIS programs is complex, and only in 2012 did they begin to be utilized to their full potential. At the present moment, HRIS development is mainly focused on optimizing existing programs. To date, HRIS has been successful in adding a large number of modules. Every year, a mechanism to add any

module is already in place. A meeting to discuss the modules and their reports is required for the inclusion of modules. The current optimization of the HRIS program and the creation of modules demonstrate the spirit of a good learning and growth perspective from HRD PT.ABC, which is the desire to improve and generate value continually.

The HRD administration procedure should be simplified thanks to an HRIS application that eliminates manual effort. HRIS is also capable of assisting HRD performance in becoming more effective and efficient since it is managed via a system, making it quicker and more regulated. This demonstrates that the availability of informational capital serves a valuable role in assisting business entities in improving their HC performance.

Overall, BSC HRD PT.ABC can perform the functions of a strategic management system, including translating the vision, communicating and connecting, business planning, feedback, and learning. Furthermore, there have been no design or process failures at BSC HRD due to inadequate communication.

Effectiveness is ingrained in the company from the start, and BSC is seen as a never-ending process. In addition, the owned BSC meets the requirements for BSC success, such as top-level commitment and support; setting the right objectives; translating objectives into measurable measures; linking measures to rewards; implementing a simple tracking system; creating and linking BSCs at all levels within the organization; effective communication; and linking strategic plazas. To boost HC in HRD PT.ABC, Palembang, BSC learning and development perspectives were improved. Even the division head indicates how vital the organization's human resources are for the future and survival of the business entity, according to HRD PT.ABC. The most significant view is the learning and development view, according to HRD PT.ABC. Intangible assets are critical assets for HRD PT.ABC, because they represent the company's future. This stimulates attempts to improve the three pillars of HC: skills, knowledge, and talent. In



the following subsections, we'll go through why this is the case.

When it comes to working with HRD staff, HRD PT, ABC understands and has applied talent management. The convergence of strategic talent management characteristics also contributes to HRD's performance in recruiting, developing, and keeping outstanding personnel. HRD focuses on filling succession candidates while implementing talent management. However, there are several stated issues with this process owing to a lack of accurate data, including a lack of executive support, a low level of activity, too much paperwork, and too many meetings. HRD talent management, on the other hand, has been able to meet all of the requirements for establishing efficient talent management and has resulted in several real advantages for both workers and HRD.

HRD PT.ABC has established a link between HC and BSC HRD. Getting a BSC is a process that takes time and effort.has incorporated the spirit of the significance of HC into the BSC's preparation and review. Ensure that all levels of HRD are involved in the process. In addition, the BSC incorporates HC, indicating that the HC has been linked with the BSC and HRD's vision and objective.Despite the fact that they have done an excellent job with HC, PT.ABC's HRD is still a problem. Should take Kaplan and Norton's suggested measure of HC preparedness into account? The year was 2020. One of the advantages of this assessment is that HRD will determine the degree of HC preparedness in certain skills and implement HC development programs depending on the gaps present. This metric is significant because the greater the HC readiness, the sooner the HC earns cash.

B. Improving BSC's learning and development viewpoint to boost HC inPalembang -based HRD PT.ABC

From the standpoint of learning and development BSC HRD PT.ABC was correct in advocating for an HC increase for the division. The following is a description of each perspective's goal and its relation to the enhancement of HC HRD PT.ABC.Implementation of the IDP is a crucial

metric for measuring employee competence growth in the HR department. IDP stands for Individual Development Plan, and it consists of some components, including job rotation, coaching and counselling, workshops/training, etc. Engaging in industrial relations training, becoming a trainer, participating in a pilot project, exchanging expertise, and other IDP activities are examples of IDP activities. Some of IDP's actions are listed here, along with their relevance to the rise in HC HRD PT.ABC.Since job rotation forces workers to execute various activities, it will impact the increase in HC HRD PT X because workers will gain new skills and knowledge as a result of the process.In HRD PT ABC, superiors provide coaching and counselling to subordinates to identify their potential, manage and develop themselves, and improve their performance. Through this procedure, the three components of HC may be augmented.

Workshops/training can help extend the three elements of HC: developing employee skills, such as training on handling complaints, developing employee knowledge, such as through training on ISO, and developing employee talents, such as through training on problem-solving and decision making. On the other hand, movement can only contribute 10% to developing one's skills, but everyday work, coaching, and counselling may contribute 70% and 20%, respectively.The three aspects of HC, namely developing employee skills, knowledge, and talent, maybe generated via the pilot project. Factual information received during training on pilot projects is turned into experience knowledge when the pilot project is tested within the framework of HRD, as an example of knowledge development.HRD personnel' skills, knowledge, and capabilities may all be enhanced through sharing information. Reading skills may be acquired via this activity. Understanding may be achieved via factual information, such as information gleaned from the contents of books read or materials offered by other workers.The exercises contained in the IDP have been kept to a minimum so that employees may grow in an organized way to support the rise in HC. Superiors undertake IDP monitoring with



subordinates every three months, along with IPP evaluations while performing coaching and counselling; if any items have not been executed, the superior will inquire about the subordinates' hurdles. It is believed that the success of this IDP would motivate HRD to support the accomplishment of a higher IPP objective in the sense that the development is meant to boost employee performance (HC). The execution of this IDP has been guided by a spirit of learning and development, focusing on continual improvement and value creation. Employees' personal growth via the IDP program is founded on the belief that HC is a valuable asset. This demonstrates that businesses are foreseeing the future by concentrating their efforts on the development of HC. At the present moment, establishing an integrated HRIS is still being pursued, and HRIS has been successful in adding some modules. The current optimization of the HRIS program and the creation of modules demonstrate the spirit of a good learning and growth perspective from HRD PT.ABC, which is the desire to improve and generate value continually. Although HC development is a fundamental aspect of this approach, the presence of HRIS demonstrates that HRD PT.ABC's learning and growth viewpoint include an element of informational capital, specifically the HRIS program.

Conclusion

HRD PT.ABC's mission is to provide the most extraordinary human resources possible to ensure stakeholder satisfaction. BSC HRD PT.ABC and BSC XYZ Group work well together. BSC, as a strategic management system, can translate strategy into operational goals, allowing HRD PT.ABC, as a subsidiary of PT.ABC, the holding company, operate well enough to assist other business units within the XYZ Group's umbrella. The primary restrictions that HRD has in implementing the BSC are connected to a great deal of administration and employee commitment. In contrast, the particular conditions are based on three viewpoints, except for financial restrictions. High staff turnover is a limitation from the customer's standpoint, whereas the number of successful candidates who fall short of the objective is

limited from the internal process's viewpoint. Only technological limits exist in the learning and development viewpoint, and no HC-related challenges exist. HRD PT.ABC. Has planned and executed BSC satisfactorily. HRD PT.ABC's learning and growth perspective, in particular, can be said to have succeeded in linking this perspective with an increase in HC, thereby encouraging HRD to deliver better performance, allowing HRD to fulfil the mandate of HRD's vision and mission by providing the best human resources to support the development of XYZ Corporation's business units. There is no preliminary research exploring the association between the learning and development viewpoint and HC; therefore, this research has some limitations. Another difficulty in data collection was that comprehensive data on BSC could not be gathered due to scope constraints. More research is undoubtedly required because just one division was used as a case study in this work.

References

- Balki, M. K., Erdoğan, S., Aydın, S., & Sayin, C. (2020). The optimization of engine operating parameters via SWARA and ARAS hybrid method in a small SI engine using alternative fuels. *Journal of Cleaner Production*, 258. <https://doi.org/10.1016/j.jclepro.2020.120685>
- Goldschmidt, K. H., & Kumar, S. (2016). Humanitarian operations and crisis/disaster management: A retrospective review of the literature and framework for development. *International Journal of Disaster Risk Reduction*, 20, 1–13. <https://doi.org/10.1016/j.ijdrr.2016.10.001>
- Govindan, K., Shankar, K. M., & Kannan, D. (2020). Achieving sustainable development goals through identifying and analyzing barriers to industrial sharing economy: A framework development. *International Journal of Production Economics*, 227. <https://doi.org/10.1016/j.ijpe.2019.107575>
- Kovács, G., & Tatham, P. (2009). Humanitarian logistics performance in the light of gender. *International Journal of Productivity and Performance Management*, 58(2), 174–187. <https://doi.org/10.1108/17410400910928752>
- Kunz, N., Reiner, G., & Gold, S. (2014).



Investing in disaster management capabilities versus pre-positioning inventory: A new approach to disaster preparedness. *International Journal of Production Economics*, 157(1), 261–272.

<https://doi.org/10.1016/j.ijpe.2013.11.002>

Li, Q., Zhao, D., Li, X., & Wang, X. (2022). Electric vehicle sharing based “energy sponge” service interfacing transportation and power systems. *Cleaner Logistics and Supply Chain*, 3, 100022.

<https://doi.org/10.1016/j.clscn.2021.100022>

Lima, P. A. B., Delgado, F. C. M., Santos, T. L. dos, & Florentino, A. P. (2022). Medications reverse logistics: A systematic literature review and a method for improving the Brazilian case. *Cleaner Logistics and Supply Chain*, 3, 100024.

<https://doi.org/10.1016/j.clscn.2021.100024>

Lu, M. T., Hsu, C. C., Liou, J. J. H., & Lo, H. W. (2018). A hybrid MCDM and sustainability-balanced scorecard model to establish sustainable performance evaluation for international airports. *Journal of Air Transport Management*, 71, 9–19.

<https://doi.org/10.1016/j.jairtraman.2018.05.008>

Malek, J., & Desai, T. N. (2021). A framework for prioritizing the solutions to overcome sustainable manufacturing barriers. *Cleaner Logistics and Supply Chain*, 1, 100004.

<https://doi.org/10.1016/j.clscn.2021.100004>

Mollah, A. K., Sadhukhan, S., Das, P., & Anis, M. Z. (2018). A cost optimization model and solutions for shelter allocation and relief distribution in flood scenario. *International Journal of Disaster Risk Reduction*, 31, 1187–1198.

<https://doi.org/10.1016/j.ijdrr.2017.11.018>

Moshtari, M., Altay, N., Heikkilä, J., & Gonçalves, P. (2021). Procurement in humanitarian organizations: Body of knowledge and practitioner’s challenges. *International Journal of Production Economics*, 233.

<https://doi.org/10.1016/j.ijpe.2020.108017>

Mwambo, F. M., Fürst, C., Nyarko, B. K., Borgemeister, C., & Martius, C. (2020). Maize production and environmental costs: Resource evaluation and strategic land use planning for food security in northern Ghana

by means of coupled emergy and data envelopment analysis. *Land Use Policy*, 95. <https://doi.org/10.1016/j.landusepol.2020.104490>

Nandi, S., Sarkis, J., Hervani, A. A., & Helms, M. M. (2021). Redesigning Supply Chains using Blockchain-Enabled Circular Economy and COVID-19 Experiences. *Sustainable Production and Consumption*, 27, 10–22.

<https://doi.org/10.1016/j.spc.2020.10.019>

Nikkhoo, F., Bozorgi-Amiri, A., & Heydari, J. (2018). Coordination of relief items procurement in humanitarian logistic based on quantity flexibility contract. *International Journal of Disaster Risk Reduction*, 31, 331–340.

<https://doi.org/10.1016/j.ijdrr.2018.05.024>

Oktari, R. S., Munadi, K., Idroes, R., & Sofyan, H. (2020). Knowledge management practices in disaster management: Systematic review. *International Journal of Disaster Risk Reduction*, 51.

<https://doi.org/10.1016/j.ijdrr.2020.101881>

Oloruntoba, R. (2010). An analysis of the Cyclone Larry emergency relief chain: Some key success factors. *International Journal of Production Economics*, 126(1), 85–101.

<https://doi.org/10.1016/j.ijpe.2009.10.013>

Patil, A., Shardeo, V., Dwivedi, A., Madaan, J., & Varma, N. (2021). Barriers to sustainability in humanitarian medical supply chains. *Sustainable Production and Consumption*, 27, 1794–1807.

<https://doi.org/10.1016/j.spc.2021.04.022>

Pomponi, F., Moghayedi, A., Alshawawreh, L., D’Amico, B., & Windapo, A. (2019). Sustainability of post-disaster and post-conflict sheltering in Africa: What matters? *Sustainable Production and Consumption*, 20, 140–150.

<https://doi.org/10.1016/j.spc.2019.06.007>

Rabbani, A., Zamani, M., Yazdani-Chamzini, A., & Zavadskas, E. K. (2014). Proposing a new integrated model based on sustainability balanced scorecard (SBSC) and MCDM approaches by using linguistic variables for the performance evaluation of oil producing companies. *Expert Systems with Applications*, 41(16), 7316–7327.

<https://doi.org/10.1016/j.eswa.2014.05.023>

Rajakaruna, S., Wijeratne, A. W., Mann, T. S.,



& Yan, C. (2017). Identifying key skill sets in humanitarian logistics: Developing a model for Sri Lanka. *International Journal of Disaster Risk Reduction*, 24, 58–65.
<https://doi.org/10.1016/j.ijdr.2017.05.009>

Shamout, S., Boarin, P., & Wilkinson, S. (2021). The shift from sustainability to resilience as a driver for policy change: a policy analysis for more resilient and sustainable cities in Jordan. *Sustainable Production and Consumption*, 25, 285–298.
<https://doi.org/10.1016/j.spc.2020.08.015>

Torrado, A., & Barbosa-Póvoa, A. (2022). Towards an Optimized and Sustainable Blood Supply Chain Network under Uncertainty: A Literature Review. *Cleaner Logistics and Supply Chain*, 3, 100028.
<https://doi.org/10.1016/j.clscn.2022.100028>

Wagner, S. M., Thakur-Weigold, B., Gatti, F., & Stumpf, J. (2021). Measuring and improving the impact of humanitarian logistics consulting. *Production Planning and Control*, 32(2), 83–103.
<https://doi.org/10.1080/09537287.2020.1712748>

Yazdani, M., Tavana, M., Pamučar, D., & Chatterjee, P. (2020). A rough based multi-criteria evaluation method for healthcare waste disposal location decisions. *Computers and Industrial Engineering*, 143.
<https://doi.org/10.1016/j.cie.2020.106394>

Zavadskas, E. K., & Turskis, Z. (2010). A new additive ratio assessment (ARAS) method in multicriteria decision-making. *Technological and Economic Development of Economy*, 16(2), 159–172.
<https://doi.org/10.3846/TEDE.2010.10>

