



## ENHANCING EMPLOYEE PERFORMANCE IN THE CONSTRUCTION AND DESIGN INDUSTRY: A STRATEGIC APPROACH USING THE HR SCORECARD, AHP, AND OMAX

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### ABSTRACT

This study addresses PT.X.'s productivity issues in commercial building construction and interior design by developing a precise employee performance measurement system. The motivation arises from the shortcomings of the current evaluation system, which relies heavily on attendance and subjective HR Manager ratings, leading to project delays, customer dissatisfaction, absenteeism, and tardiness. The research proposes a new performance evaluation system by integrating the Human Resources Scorecard, Analytical Hierarchy Process (AHP), and Objective Matrix (OMAX). This approach ensures a comprehensive evaluation by aligning HR practices with the firm's strategic goals. AHP helps prioritize performance indicators objectively, while OMAX sets achievable targets for them. The study identifies 14 strategic objectives and 15 key performance indicators (KPIs) to improve financial performance, internal processes, customer satisfaction, and learning and growth metrics. The analysis reveals that 7 out of the 15 KPIs perform poorly, indicating the need for targeted improvements. Key recommendations include enhancing project management, implementing compliance regulations and penalties, introducing performance bonuses, and investing in staff training. The study provides actionable insights for managers and HR professionals seeking to implement quantitative and objective performance measurement systems. The findings can guide PT.X. and similar organizations in aligning their strategic goals with HR practices and enhancing overall productivity. The research is innovative in applying the HR Scorecard, AHP, and OMAX within the construction and design industry. This objective and systematic approach offers a significant opportunity for organizational growth by enhancing the measurement and improvement of employee performance.

**Keywords:** Performance Measurement, Employee Performance, Human Resources Scorecard, Analytical Hierarchy Process, Objective Matrix

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## 1. INTRODUCTION

The construction industry is an essential sector that involves planning, executing, and managing construction projects (BUJK, 2022). Several nations, including Indonesia, have seen significant growth in this sector, with construction companies increasing to 203,403 units in 2021 (BPS, 2022; Santoso, 2022). Employee performance measurement is a critical aspect of maintaining a competent workforce, aiding in the identification of strengths and weaknesses (Al-Jedaia & Mehrez, 2020). This performance is evaluated based on various factors such as competitiveness, efficiency, and effectiveness (Taouab & Issor, 2019).

Research indicates that a company's performance significantly hinges on the quality of its workforce (Rosadi & Purnomo, 2020). Both internal factors like human resources and external factors significantly impact corporate performance (Taouab & Issor, 2019). Human resources are considered pivotal in this regard, highlighting the need for optimal employee performance to achieve corporate objectives.

Previous research shows a correlation between employee performance and overall organizational productivity. Companies can see a noticeable improvement in productivity if their employees' output increases. However, this increase is dependent on various factors, both internal and external (Taouab & Issor, 2019). The results of the research in developing and evaluating human resource outputs in oil and gas companies show that companies focus more on administrative, strategic, and consumer perspectives than on financial perspectives (Lohana, Abidi, Sahoo, & Singh, 2021). To improve hospital performance (especially from a nonfinancial perspective), the development of human resources strategies (especially staff training and development strategy, staff compensation & reward strategy, and compensation strategy) can be considered by hospital managers. The findings of this study can be used for

developing hospital performance in a similar context (Nafari & Rezaei, 2022). The main result of the research is a finding that there is a statistically significant relationship between the enterprises considering the non-financial indicators and the use of the Balanced Scorecard methodology to be important (Gallo & Benková, 2022). The results of the study in Jordanian public joint-stock companies. Recommend the creation of an organizational culture that promotes the optimal and effective use of HRM functions in the organizational environment (Ilic & Andjelic, 2023). Healthcare research suggests that organizations should consider the effects of digital transformation and employee acceptance on organizational performance to meet sustainable development challenges. The study emphasized the influence factors on the performance dimensions within the BSC and the effects of financial and non-financial performance on sustainable development (Varzaru, 2022).

Past research has not adequately addressed the practical implications of poor employee performance on project delivery within the construction industry. Studies have often been broad in scope, lacking a focused analysis on specific sectors, such as construction. Furthermore, they have not sufficiently analyzed the influence of specific internal factors, such as human resource quality, on project success. The purpose of this study is to design a performance measurement system to find out what factors must be improved so that employee performance can improve. The purpose of this study is to design a performance measurement system to find out what factors must be improved so that employee performance can improve.

## 2. METHODS

### 2.1. Human Resource Scorecard

The Balanced Scorecard concept is a comprehensive tool in which each

organizational unit has to adapt its activities to achieve specific aims in defining a business strategy (Salido, Leyva, & Diaz, 2019). BSC integrates and enables coordination of implemented plans of the company, giving the possibility to define coherent initiatives leading to continuous improvement, reconstruction of processes, or establishment of restructuring programs (Hansen & Schaltegger, 2016). This method presents a generic four-tier framework for constructing a BSC. The four levels are a sequence of top-to-bottom business processes, financial, customers, internal business processes, and learning and growth, around which the BSC's basic structure is organized and illustrated in a strategy map diagram. However, a notable paradox and shortcoming of their framework is that each of the four tiers are important driver of business success but conspicuously missing are employees, human capital, and HRM (Kaufman & Barry, 2019). The Balanced Scorecard has received surprisingly big attention in the human resource management (HRM) field (Kaplan & Norton, 1996). Because of the importance of the HRM functions of the balanced scorecard, the functions of human resources management have become of special importance at the practical level, intending to correct and monitor the processes of change and development within the various organizations. This importance is visible through the efforts made by Jordanian companies to pay attention to human resources. This method is a Human resource success assessment tool to improve the organization (Ilic & Andjelic, 2023). The Human Resource Scorecard focuses on processes that link individuals, strategies, and outcomes to human resource evaluation. Companies can benefit from this (Lohana, Abidi, Sahoo, & Singh, 2021). A Human Resources Scorecard is a concept to measure HR's contribution using the HRSC method. The HRSC transforms the vision, mission, and strategy to become human resources whose contribution can be measured. The HRSC can help managers or leaders of

organizations or companies to ensure that all HR decisions support or contribute to business strategies (Kanjanaabuc & Pongpirul, 2020).

Perspectives that exist on the Human Resources Scorecard Focusing on 4 aspects including perspective Financial or financial, perspective Customer or customer, perspective Internal Business Process, and perspectives Learning and Growth. This perspective is interpreted as the focus of the view, perspective used in compiling Key Performance Indicators (Pratama & Ismail, 2018). Deep Human Resources Scorecard, These four perspectives are interconnected and inseparable. The four perspectives Human Resources Scorecard Helps organizational leaders to carry out industrial strategy management and can be used as a complement that helps with performance measurement (Kaplan & Norton, 1992) Here's a step-by-step model Human Resource Scorecard (Becker, 2009)

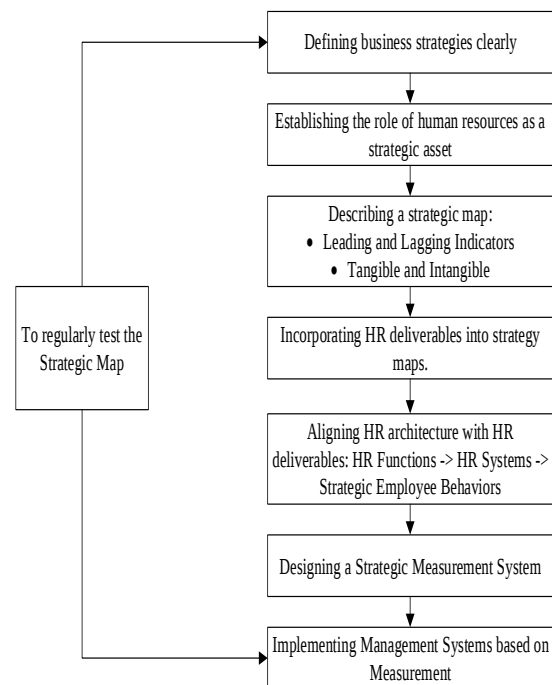


Figure 1. Human Resource Scorecard Steps.

## 2.2. Analytical Hierarchy Process

This model aims to measure the relative priority of obtaining alternatives that can be given, based on the assessment of decision making. Advantages of use (Palcic & Lalic, 2009) Analytical hierarchy process is a structured decision-making process that involves using experts' knowledge to determine the rank and weights by constructing an eigenvalue pairwise comparison matrix ( Saranya & Saravanan, 2020). Analytical Hierarchy Process (AHP) can not only be used as a weighting tool for criteria and subcriteria but can also help to organize problems into 2 principles namely the principle of priority and the principle of logical coherence. The AHP equipment is for prerequisites. There are three main principles in problem-solving in the (Mushtafa, 2017) Analytical Hierarchy Process (AHP), namely:, (Saaty, 2012)

- Decomposition: This principle is to solve or divide a complete problem into its elements in a hierarchical form of the decision-making process

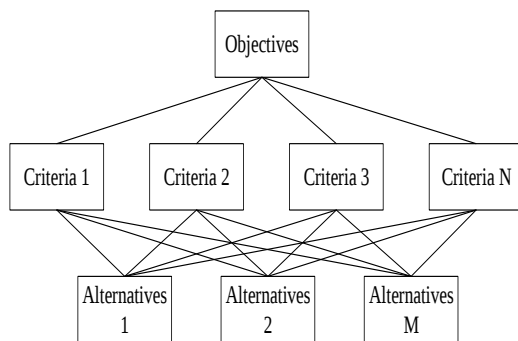


Figure 2. Hierarchical structure

- Comparative Judgment: This stage is the essence of using AHP because it will affect the priority order of the elements. The preference scale used is a scale of 1 which indicates the lowest level to a scale of 9 which indicates the highest level.

Table 1. Pairwise Benchmarking

| D   | X1  | X2  | ... | Xn  |
|-----|-----|-----|-----|-----|
| X1  | X11 | X12 | ... | X1n |
| X2  | X21 | X22 |     | X2n |
| ... |     |     |     |     |
| Xn  |     |     | ... | X   |

- Logical Consistency: This step is done by regressing all vector eigens obtained from the hierarchical level and beyond

## 2.3. Objective Matrix

Objective Matrix is defined as part of a method for measuring productivity, in checking the productivity of each part that is by weighing to obtain an overall productivity index. Objective Matrix has various advantages, namely as follows: relatively basic and easy, easy to implement, and does not require focused expertise, is a union of qualitative and quantitative approaches; Various units of productivity criteria are used as standard units and can be used in work units related to the measurement of performance aspects or any productivity criteria. OMAX can measure and monitor the productivity of each part. Measurements with OMAX are carried out on an objective matrix consisting of 3 groups (blocks). The body of the matrix is formed from a series of numbers reflecting the level of measurement of the performance of each productivity parameter. This scale has eleven levels or sectors, which are numbered from 0 to 10. Productivity increases as scale increases. There are three parts to the eleven scales, namely: (Nurmaydha, 2007) (Setiowati, 2017) (Adianto, Suryatmo, & Gunawan, 2014) (Setiowati, 2017)

Table 2. OMAX Matrix

| Productivity Criteria | ...          | ...     | ... | ... |
|-----------------------|--------------|---------|-----|-----|
| Performance           |              |         |     |     |
| Score                 | 10           |         |     |     |
|                       | 9            |         |     |     |
|                       | 8            |         |     |     |
|                       | 7            |         |     |     |
|                       | 6            |         |     |     |
|                       | 5            |         |     |     |
|                       | 4            |         |     |     |
|                       | 3            |         |     |     |
|                       | 2            |         |     |     |
|                       | 1            |         |     |     |
|                       | 0            |         |     |     |
| Score                 |              |         |     |     |
| Weight                |              |         |     |     |
| Value                 |              |         |     |     |
| Current               | Previous 300 | Index % |     |     |

- Level 0, indicates the lowest or worst productivity value that is likely to occur.
- Level 3, shows the value of productivity in the current formation.
- Level 10, shows the value of productivity the company expects up to a certain period. The shape of the matrix is as follows: (Setiowati, 2017)

### 2.3. Traffic Light

Traffic Light System is a symbol indicated for categorization of whether the value of a performance evaluation indicator requires improvement or not Green indicates that productivity criteria have exceeded productivity targets achieved on a scale of 8-10, and yellow indicates that productivity values have not been achieved on a scale of 4-7, and red criteria indicate the level of productivity achieved. The achievement of productivity has not been achieved on a scale between 0 to 3. The scale of color groups makes it easier for the industry to assess the company's performance whether it is on target or not reaching the target (Peryoga, 2018) (Sirait, 2020) (Putri & Surjasa, 2018)

Table 3. Traffic Light System

| Performance |    |                   |
|-------------|----|-------------------|
| Score       | 10 | Has been achieved |
|             | 9  |                   |
|             | 8  |                   |
|             | 7  | Not yet reached   |
|             | 6  |                   |
|             | 5  |                   |
|             | 4  |                   |
|             | 3  | Low               |
|             | 2  |                   |
|             | 1  |                   |
|             | 0  |                   |

## 2. FINDINGS AND DISCUSSION

This study conducts data processing from 3 methods, namely data processing in the Human Resources Scorecard method, data processing in the Analytical Hierarchy Process (AHP) method, and data processing in the Objective Matrix (OMAX) method.

### 3.1. Identification Strategy Company

Corporate strategy at PT. X is as follows:

1. Conduct professional team selection
2. Make a meticulous project plan
3. Manage budgets effectively
4. Harnessing technology and innovation

There is also a human power summer strategy, namely:

1. Perform performance measurements seen through capabilities.
2. Manage HR-related costs.
3. Implement company targets in the form of design and construction project targets received.
4. Prioritize customer satisfaction and service provided.
5. Prioritize employee job satisfaction.
6. Develop human resource skills by providing training.
7. Improve employee discipline

### 3.2. Strategy Map Human Resource Scorecard

Before arriving at the final result, this study finds a Human Resource Strategy Map from the preparation of the company's strategic objectives and determines the causal relationship between these strategic objectives. The Human Resource Strategy Map is shown in Figure 3.

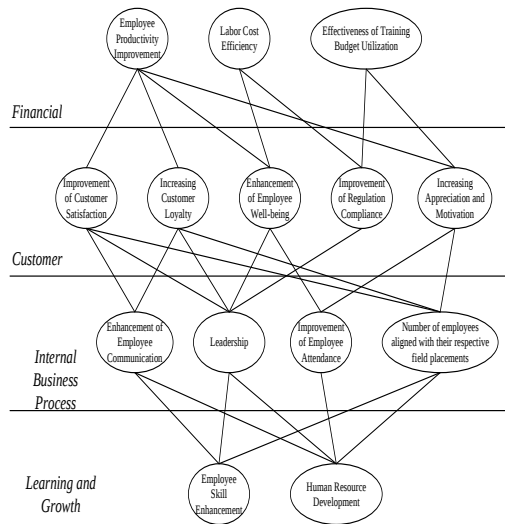


Figure 3. Strategy Map

### 3.3. Design Key Performance Indicator by Method Human Resources Scorecard

Key Performance Indicators are designed based on the company's strategy and strategic objectives. The determination of this KPI refers to the method 4 perspectives of the human resources scorecard can be seen in Table 4.

Table 4. KPI design

| Variable  | Strategy Goals                      | Result Size (Lag Indicator) | Performance Trigger Size (Lead Indicator)                       |
|-----------|-------------------------------------|-----------------------------|-----------------------------------------------------------------|
| Financial | F1. Increased employee productivity | F1.1 Completed projects     | F1.1.1 Number of Projects per year                              |
|           | F2. Labor cost efficiency           | F2.1 Employee Income Level  | F2.1.1 Total revenue of all employees as of the end of the year |

| Variable                  | Strategy Goals                                               | Result Size (Lag Indicator)                           | Performance Trigger Size (Lead Indicator)                                          |
|---------------------------|--------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------|
|                           | F3. The effectiveness of the use of training budgets         | F3.1 Level of Expenditure on training per year        | F3.1.1 Total year-end training expenditure                                         |
| Customer                  | C1. Increased customer satisfaction                          | C1.1 Speed of Service                                 | C1.1.1 Service time /customer                                                      |
|                           |                                                              | C1.2 Level of incoming complaints                     | C1.2.1 Number of incoming complaints                                               |
|                           | C2. Increased consumer loyalty                               | C2.2 Existing customer level                          | C2.2.1 Number of returning customers                                               |
|                           | C3. Improved employee welfare                                | C3.1 Employee welfare level                           | C3.1.1 Number of employees receiving BPJS                                          |
| Customer                  | C4. Increased assertiveness in enforcement                   | C4.1 Level of Compliance in Company Regulations       | C4.1.1 Number of sanctioned employees                                              |
|                           | C5. Increased appreciation and motivation                    | C5.1 Employees who get bonuses                        | C5.1.1 Number of employees who received bonuses                                    |
| Internal Business Process | I1. Improved employee communication                          | I1.1 Hour Coordination between managers and employees | I1.1.1 Length of time required during meetings                                     |
|                           | I2. Leadership improvement                                   | I2.1 Many evaluations                                 | I2.1.1 Number of evaluations per month                                             |
|                           | I3. Increased employee attendance                            | I3.1 Employee attendance rate                         | I3.1.1 Number of employee absences                                                 |
|                           | I4. The number of employees by the placement of their fields | I4.1 Employee recruitment                             | I4.1.1 Number of employees who have not met recruitment standards                  |
| Learning and Growth       | L1. Improving employee skills                                | L1.1 Implementation of employee training              | L1.1.1 Number of employee trainings                                                |
|                           | L2. Human resource development                               | L2.1 Suitability of education level                   | L2.1.1 Number of employees who have a level of education by company specifications |

### 3.4. Priority Weighting Results Analytical Hierarchy Process

This stage is carried out to determine the priority of the strategy that has been determined in the previous stage. The weighting results can be seen in Table 5.

| Criterion                 | Weight | CR    | Alternative                                      | Weight                                                   | CR    |       |
|---------------------------|--------|-------|--------------------------------------------------|----------------------------------------------------------|-------|-------|
| Financial                 | 0,312  | 0,076 | Increased employee productivity                  | 0,327                                                    | 0,009 |       |
|                           |        |       | Labor cost efficiency                            | 0,336                                                    |       |       |
|                           |        |       | The effectiveness of the use of training budgets | 0,338                                                    |       |       |
| Customer                  | 0,194  |       | Increased customer satisfaction                  | 0,136                                                    | 0,025 |       |
|                           |        |       | Increased consumer loyalty                       | 0,238                                                    |       |       |
|                           |        |       | Improving Employee Welfare                       | 0,240                                                    |       |       |
|                           |        |       | Increased Assertiveness in Enforcement           | 0,182                                                    |       |       |
| Customer                  | 0,194  |       | 0,076                                            | Increased appreciation and motivation                    | 0,204 | 0,025 |
| Internal Business Process | 0,266  |       |                                                  | Improved employee communication                          | 0,267 | 0,079 |
| Internal Business Process | 0,266  |       | 0,076                                            | Leadership                                               | 0,284 | 0,079 |
|                           |        |       |                                                  | Increased employee attendance                            | 0,152 |       |
|                           |        |       |                                                  | The number of employees by the placement of their fields | 0,298 |       |
| Learn and Growth          | 0,228  |       |                                                  | Employee Skill Improvement                               | 0,5   | 0,000 |
|                           |        |       |                                                  | Human resource development                               | 0,5   |       |

### 3.5. Calculation Result Objective Matrix

At this stage, determine the target, weight, and score of each key performance indicator. Scoring by conducting a traffic light system where the system uses red, yellow, and green colors to indicate whether a metric or score is within the desired range or not.

Table 6. Omax Score Results

| No | KPIs                                                       | Performance       | Score | Weight | Value |
|----|------------------------------------------------------------|-------------------|-------|--------|-------|
| 1  | Number of Projects                                         | 108               | 1     | 10     | 10    |
| 2  | Total income of all employees                              | IDR 1,500,000,000 | 10    | 8      | 80    |
| 3  | Total expenditure on training                              | IDR 5,000,000     | 4     | 10     | 40    |
| 4  | Service time                                               | 90 minutes        | 10    | 3      | 30    |
| 5  | Number of incoming complaints                              | 3                 | 3     | 3      | 9     |
| 6  | Number of returning customers                              | 9                 | 7     | 8      | 56    |
| 7  | Number of employees receiving BPJS                         | 33                | 10    | 8      | 80    |
| 8  | Number of sanctioned employees                             | 5                 | 3     | 4      | 12    |
| 9  | Number of employees who received bonuses                   | 4                 | 2     | 2      | 4     |
| 10 | The length of time it takes at the time of the meeting     | 60 minutes        | 10    | 4      | 40    |
| 11 | Number of evaluations                                      | 3                 | 3     | 5      | 15    |
| 12 | Number of employee absences                                | 36                | 1     | 10     | 10    |
| 13 | Number of employees who have not met recruitment standards | 10                | 5     | 5      | 25    |
| 14 | Number of employee trainings                               | 3                 | 3     | 10     | 30    |

| No  | KPIs                                                                                                 | Performance | Score | Weight | Value |
|-----|------------------------------------------------------------------------------------------------------|-------------|-------|--------|-------|
| 15  | The number of employees who have a level of education that matches the specifications of the company | 30          | 9     | 10     | 90    |
| Sum |                                                                                                      |             |       |        | 531   |

#### 4. CONCLUSION AND SUGGESTION

In conclusion, this study effectively demonstrates the application of the human resources scorecard method in performance measurement, culminating in the establishment of 14 strategic goals spread across four distinct perspectives. The financial perspective, custom set perspective, internal business process perspective, and learning and growth perspective have each been addressed, providing a comprehensive view of strategic aims.

The study further developed a set of 15 key performance indicators (KPIs), incorporating an equal balance of leading and lagging indicators across the four scorecard perspectives. The detailed weighting analysis highlighted the financial criteria as the most critical, followed by internal business processes, learning and growth, and customer criteria.

Moreover, the productivity index analysis offers valuable insight into performance status. With a 77% productivity index, the study identified KPIs across varying performance categories. Five KPIs are on target, three KPIs are near target but need caution, and seven KPIs fall significantly below expectations.

Overall, the findings underscore the importance of a balanced approach to performance measurement in human resources. The strategic goals and KPIs presented here offer a framework that can guide organizations in optimizing their performance while identifying areas requiring further improvement. The insights derived provide a valuable foundation for future studies aiming to refine performance metrics and management strategies in human resources.

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