

FUZZY ANALYTICAL HIERARCHY PROCESS FOR SELECTING PRIORITY STRATEGIES IN IMPROVING EFFECTIVE LEADERSHIP: INSIGHT FROM INDONESIA TAX OFFICES

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ABSTRACT

The current study seeks to offer a key strategy shift in attaining effective leadership in Indonesia tax offices, based on group and exchange theories of leadership perspective. This research discusses the benefits of breaking down a complex unstructured situation in Indonesian tax offices into several components in a hierarchical arrangement by assigning a subjective value to each variable's relative importance and determining which variable has the highest priority to find solutions. The processing technique used to determine the strategy is the fuzzy Analytical Hierarchy Process (FAHP). After determining the scale, the next step is data entry by entering the numbers obtained from filling out questionnaires by nine experts. The results show that the most dominant factor in attaining effective leadership is having human resource competence, and the actor is the director general taxes. The following finding is that gaining optimal tax revenue is the main objective. The prior alternative strategy to recommend is executing collaborative actions. The results of this study are presented and discussed, which can be helpful for universities in similar developing countries.

Keywords: Analytical Hierarchy Process, Collaborative Leadership, Effective Leadership, Human Resource Management, Strategic Planning

INTRODUCTION

Over the past ten years, change has become a constant that is unavoidable, and an organization's success depends on its capacity for change (Deschamps et al., 2020). Organizations must continue to evolve in the changing environment as a result of environmental changes. With an emphasis on human growth, organizational change, and the role of technology, everyone must have new skills, talents, and attempts to deal with change in order to succeed in a new environment (McDonnell et al., 2017). Leaders must be capable of developing strategies for advancing the company they oversee, be solution-focused, and be able to manage all parties involved in the process to ensure that everything proceeds smoothly (Samani, 2017). Effective leaders are leaders who are able to determine the decisions they make and the influence they have (Harkavy, 2020).

The Directorate General of Taxes (DJP), one of the agencies with the power to collect state revenues, plays a significant role in the Indonesian economy to promote the success of tax income. A bureaucratic and public-service agency called DJP is in charge of collecting state funds from the taxation industry, where taxes are a key tool used by the government to carry out and accomplish state objectives (Irianto, 2014). Due to how economic volatility affects

performance, DJP is aware of the necessity for a strong, long-lasting leadership model, particularly in times of upheaval, uncertainty, and political unrest (Irianto 2014). According to Veiga et al., (2019), the primary obstacles to the sustainability of leadership in public sector organizations are a lack of preparation, attention, and implementation of long-term strategic initiatives. Generally speaking, public service organizations mention a lack of strategy and demand immediate change and the identification of remedies to provide stability and sustainability in the governmental structure (Maiorescu et al., 2020). However, leadership in DJP is crucial since it has an impact on all business sectors and enterprises at all societal levels in addition to influencing the policies of Ministries and Institutions. Total of 46,612 people working in 595 work units, each under the direction of a head office, are employed in the process of collecting taxes monies collected from the tax sector.

Indonesia has been a G20 member and was seen as a rising nation in Asia with huge economic size and promise. Indonesia thus attends the G20 in order to represent a collection of emerging nations, Southeast Asia, and the Islamic world. In addition to having the potential to be a gift, the demographic benefit may also provide challenges. Government organizations must adjust their performance standards and develop quick-response plans in response to this circumstance (Spee, 2020). By developing effective leaders who blend style-oriented approaches with abilities that are represented in leadership behavior, public sector organizations may become more competitive (Cote, 2017). An effective leader in the public sector has a goal-oriented, regulated, planned, accountable, and sincere leadership style (Sturm, et al., 2017; Prochazka et al, 2018). Consequently, the effects of taking risks and exercising servant leadership result in higher performance inside the firm (Alusius, 2015; Stacey, 2016).

This kind of strategy can give decision-makers in public service organizations a set of guidelines for creating and putting into practice competitive strategies. Major changes need leaders changing their leadership behaviors and approaches in order to help the business through turbulent conditions by leveraging all available resources (Yaghi, 2017). The readiness of public sector leaders, particularly those in Indonesia's tax offices, to face the current period of transition was not sufficiently covered in earlier research on effective sustainable leadership. In order to establish a priority plan for enhancing the performance of the Directorate General of Taxes, this research contributes to the effort by providing an overview of the criteria for improving an effective sustainable leader. This study has expanded the usage of the fuzzy AHP by concentrating on public service organizations and provided controls for market-level factors by focusing just on tax service offices. This study's starting point is the hierarchy that underlies the relationship between variables, actors, goals, and different strategies for increasing tax revenues. The results of this investigation are discussed and given. Institutions in other ASEAN nations may find value for the research's conclusions.

THEORETICAL UNDERPINNING

There are four theories about leadership, according to Luthan (2011). These are (a) Trait Theories of Leadership, which start with the idea that leadership is something that is innate and cannot be created; (b) Group and Exchange Theories of Leadership, which are based on

a social psychology approach to group leadership. According to Luthan's (2011) adaptation of the House of the idea, there are four leadership philosophies at play here: directive leadership, supporting leadership, participatory leadership, and achievement-oriented leadership (Luthan, 2011). Recognizing problems, top management, and the extent and intensity of the issues encountered are signs that a leader has the adaptable character needed to navigate the age of change. Additionally, responsive establishes and produces transformational strategies, oversees system change, fully incorporates the components that need to be modified, and enhances the leadership procedure (Francis et al, 2003). According to Cote's (2017) earlier study on effective leadership, it's critical to build connections with followers based on trust and respect if you want to become an effective leader. Effective leaders of today work together utilizing a behavior-oriented strategy to better understand the requirements of their followers and be able to help them. Creating an inventive atmosphere and being able to adjust to impending changes and uncertainties are all characteristics of adaptive leadership (Almaárif, 2017). The adaptive leader model is an effective leader in providing alternative approaches to complex problems by encouraging concepts and sustainable ways to overcome challenges (Nelson, 2017).

MATERIALS AND METHODS

Saaty (1986) created the AHP as a decision-making tool. Saaty (1986) lists three principles—hierarchy, prioritization, and logical consistency—that are employed in the comprehensive logical analysis that underpins AHP to solve issues. AHP is a technique that considers irrational elements including perception, preference, experience, and intuition. By recognizing the knowledge or information being seen, a hierarchical arrangement is established, starting with complex concerns that are broken down into their component parts. These fundamental components are dissected into their component parts and arranged hierarchically. The hierarchical structure is evaluated at each level using pairwise comparisons. Saaty (1983) asserts that a scale with a range of 1 to 9 is ideal for expressing opinions on a variety of topics. A scale of 1-9 is used as a factor to consider when comparing pairs of items at each level of the hierarchy to an element at the top level. On a nine-unit scale, the degree of the connection between the components may be expressed. The pairwise comparison matrix is considered to be consistent if the consistency ratio (CR) is 10%. (Saaty, 1987b). In general, the steps in conducting analysis using the Fuzzy AHP approach are as follows.

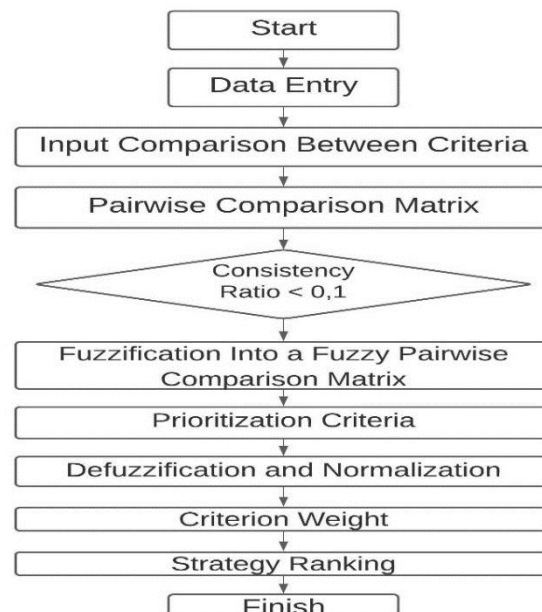


Figure 1: Fuzzy AHP Steps

The AHP scale, which is expressed as a 'crisp' number, is thought to be less capable of dealing with ambiguity. This study was conducted at several tax offices in Indonesia. The analysis involved mapping opinions and practical input from experts and practitioners regarding effective sustainability leadership implementation. Primary data were obtained from nine respondents through in-depth interviews with nine experts, including the two directors, three head of regional tax office, two expert staff, one DJP external experts and one tax consultant.

This study used Fuzzy Analytical Hierarchy Process (FAHP), which is useful in selecting an alternative problem by combining the fuzzy theory and hierarchical structure analysis (Marimin et al., 2013). The method allows decision-makers to include qualitative and quantitative data in the decision model. Consequently, the decision-making for a range assessment is more convincing than in a certain value. FAHP combines AHP and a fuzzy approach. A new approach with FAHP in analysis method using a triangular fuzzy number (TFN) as a pairwise comparison scale. TFN is a fuzzy set theory that helps measure human subjective judgments using language. Therefore, the essence of FAHP lies in pairwise comparisons described by a ratio scale associated with the fuzzy scale (Marimin et al., 2013).

Table 1: Triangular fuzzy Number

3	TFN
Absolute	(7/2, 4, 9/2)
Very Strong	(5/2, 3, 7/2)
Fairly Strong	(3/2, 2, 5/2)
Weak	(2/3, 1, 3/2)
Equal	(1, 1, 1)

DEVELOPMENT OF THE HIERARCHY MODEL

Prior to collecting data, a conceptual model for a decision issue must be created. The foundation of a hierarchy is the notion that entities may be split into different sets, with the entities of one group having an influence on the entities of other groups (Saaty, 1987). A hierarchical framework must be built to evaluate higher education skills and the ecosystem before selecting a transformation method. As seen in Figure 1, the central component of the fuzzy AHP's qualitative component serves as the basis for all of the criteria for the overall goal. In order to develop crucial criteria for the Directorate General of Tax and conduct a change plan to improve performance, the pertinent literature was researched. As previously stated, the first level of the assessment framework states that a strategic change decision's targeted purpose is to improve effective leadership. Nine experts collaborated on the development of a set of questions.

The construction of the hierarchy, as illustrated in Figure 2, begins with identify the effective sustainability leadership in the era of economic turbulence in the tax office. After that, determine the factors, actors, objectives, and alternative strategies based on focus group discussion and in-depth interviews to validate the hierarchy structure. The first hierarchy is the factors are: (a) HR competence, (b) economic situation; (c) shared value, d) information technology; (e) tax payer awareness; (f) data disclosure; (g) infrastructure. The second hierarchy is the actor who plays a role in creating effective sustainability leadership are: (a) tax office employee, (b) director general of tax, (c) Ministry of Finance, (d) tax payer, (e) ILAP. The third hierarchy is the objectives to be achieved are: (a) Optimal Tax Revenue, (b) High Tax Compliance, (c) Effective tax service, (d) Effective Law Enforcement, (e) Employee Competency Improvement (f) Effective Taxpayer Education; (g) Efficient Budget. The fourth hierarchy is an alternative strategy that can be carried out are: (a) taking responsive actions, (b) executing adaptive actions, (c) creating innovation (d) executing collaborative action, (e) implementing transformative behaviour. The hierarchical model is as follows.

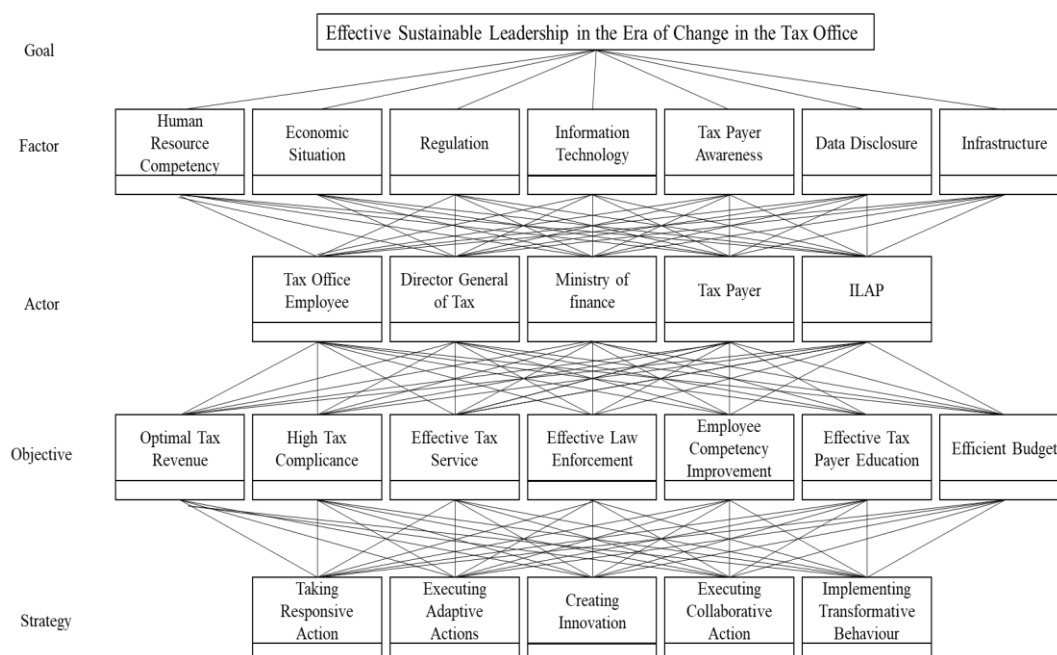


Figure 2: Hierarchical model

Source: Modified by Authors

Pairwise comparison matrix

After the hierarchy is created, the seven experts are asked to compare the elements at each level based on pairwise comparisons to estimate the relative importance of the elements at the previous level. A ratio scale was used. The ratio scale used is a scale of, with a definition of the importance level of 1, which means equally important, three means slightly more important, five means more critical, seven means very clearly more critical, and nine means absolute more important (Saaty, 1987).

Table 2: Fuzzy Number Conversion

No	AHP Scale	Information	Triangular Number
1	1	Equally Important	(1,1,3)
2	3	A Little More Important	(1,3,5)
3	5	Obviously More Important	(3,5,7)
4	7	Very Obviously More Important	(5,7,9)
5	9	Absolute More Important	(7,9,9)

Source: Marimin et al. (2013)

The fuzzy system is a structured and dynamic numerical estimator. This system predicts a function with fuzzy logic. Fuzzy logic is part of Boolean logic, which is used to hold the concept of degrees of truth, namely the truth value between true and false. Fuzzy logic often uses linguistic and verbal information. In fuzzy logic, there are several processes, namely fuzzy collection, application of if-then rules, and fuzzy inference processes. A function rule in a triangular fuzzy number (TFN), which is structured based on a linguistic set, is utilized to establish the degree of participation in FAHP. The number corresponding to the AHP's intensity of interest is converted into a set of TFN scales.

RESULTS

According to this study, the priority plan analysis of a private university requires seven specialists with competence and experience in managing a private university. In-depth interviews with experts were performed to determine the purpose of this study is to identify the most important components for effective sustainable leadership in an era of economic turbulence. Previously, it was mentioned that the research was conducted on nine experts. So, the results of this study are group decisions with nine decision makers influencing the value of the selected criteria. Before determining the most important components, we first examine the consistency of expert assessments of the components of effective leadership in the era of economic turbulence. Then to identify the most important factor components, a weight calculation is carried out whose results are shown in Table 2. Human resource competence is the most important factor with the largest weight, which is 0.3191. This factor represents the human resource competence in capabilities, skills, and know-how, is major contribution to improve the effective leadership. DJP is required to always improve service performance from time to time. These expectations include professionalism, competency improvement and employee soft skill development, uniform perception and certainty of rules, IT-based services, collaboration in rule-making, prioritizing a personal approach with taxpayers compared to the inspection process, and service standardization.

Leader human resource competencies needed in a global context are self-management competencies, and people (Kee et. al., 2017). Through various skills training, encouragement, responsibility, decision making, access to data sources and budgets, reciprocity of company reputation, and reward choose the power to influence their own affairs and those of the organization (Nasharuddin & Erwati, 2014). The second and third factors that are also important are data disclosure and economic situation that are not much different. Turbulence affects the managerial decision-making process which is essentially how to find opportunities as a way out of shocks to organizational stability (Aluisius, 2015).

Table 3: Factor weight on the factor to improve effective leadership

No	Factor	Priority	Priority
1	HR Competence	0.3191	1
2	Economic Situation	0.1389	3
3	Regulation	0.0758	6
4	Information Technology	0.0722	7
5	Tax Payer Awareness	0.1376	4
6	Data Disclosure	0.1521	2
7	Infrastructure	0.1043	5

The main objective obtained from the analysis for actor in creating effective leadership in DJP as shown in Table 3, the Director General of Taxes (Actor 2) has the greatest weight (0.3326), so that the Director General of Taxes is the most important component of the actor. Authority of the Director General of Taxes within the Directorate General of Taxes, this delegation of authority is structured in order to improve the effectiveness and efficiency of the implementation of taxation tasks within the DJP. Leaders at DJP must have the ability to make good decisions in a timely manner and with confidence after considering the precautionary principle, formulated systematically and thoroughly based on various information, alternative solutions to problems and their consequences. Leaders who are goal-oriented, self-disciplined, planning, responsible, and earnest have more transformational leadership and are thus perceived as better and more effective leaders (Prochazka, et. al., (2018). The second actor component that is also important is tax office employee (0.2342). In situations of uncertainty and turbulence. Technically competent leaders can solve technical problems related to the work of subordinates, thereby inspiring and motivating them to commit to learning and innovation (Shah et. al., 2020).

Table 4: Actor weight on the strategy to improve effective leadership

No	Actor	Priority	Priority
1	Tax office employee	0.2342	2
2	Director general of tax	0.3326	1
3	Ministry of Finance	0.1868	3
4	Tax Payer	0.1441	4
5	ILAP	0.1020	5

Moreover, based on Table 4, the most important objective component is optimal revenue (0.2290) and is followed by high tax compliance (0.2126). These two components have values that are not much different. The results of the study provide evidence that the leadership style applied by the leader has a relationship or correlation with the performance behaviour of employees (Groselj et. al., 2020). The tax office need to create perception of 'responsiveness' and 'leadership and vision'. The more responsive the public sector is in service delivery, the more optimal tax revenue (Awosika, 2014). The effective tax office leader in DJP according to the Decree of the Minister of Finance as stated in KMK 467/KMK.01/2014, which is achievement of Tax revenue and high tax compliance growth in taxpayer payments.

Table 5: Objectives for improving effective sustainable leadership

No	Objectives	Priority	Priority
1	Optimal Tax Revenue	0.2290	1
2	High Tax Compliance	0.2126	2
3	Effective tax service	0.1477	3
4	Effective Law Enforcement	0.1006	6
5	Employee Competency Improvement	0.1395	4
6	Effective Taxpayer Education	0.1114	5
7	Efficient Budget	0.0588	7

Futhermore, table 5 shows that sequentially the most important strategic components are carrying out collaborative actions (0.229), leadership development to build on best practices by enhancing and maintaining its leadership capabilities to become a strategic partner required for organizational success in today's global marketplace (Hickman & Akdere, 2018). An effective leaders follow a combined effort using a behavior-oriented approach to better understand followers' needs and be able to provide support (Cote, 2017). Thus, several other new competencies are also considered important for effective public management: compliance with laws and regulations and multi-stakeholder collaboration (Sudirman, et. al., 2018).

The second objectives is high tax compliance (0.212) This component have weights whose values are not much different. Competence development in efective leadership, can actively seeking new ideas, communicating and collaborating (Achlisson, et al., 2016). Several other new competencies are also considered important for effective public management: compliance with laws and regulations, multi-stakeholder collaboration, and technical competencies to achieve high tax compliance (Sudirman, et al., 2018).

Table 6: Alternative strategies for improving effective sustainable leadership

No	Alternative Strategy	Priority	Priority
1	Taking Responsive Actions	0.1361	4
2	Executing Adaptive Actions	0.1256	5
3	Creating innovation	0.2301	3
4	Executing Collaborative Action	0.2554	1
5	Implementing Transformative Behaviour	0.2526	2

DISCUSSION

This research gives directorate general of taxes leaders' insight into prioritizing strategies that can carry out in achieving effective sustainable leadership in tax office. The first thing that needs to be prepared from the level factor is a human resource competency. Common competencies possessed by leaders who perform effectively are communication, organising, information seeking, analytical thinking, and planning. Innovation is also an important competency to characterize effective managers. It takes a competent leader with interpersonal

skills such as good communication to increase productivity and reduce costs (Hall & Rowland, 2016).

Tax office in Indonesia needs to increase the competence of HR through talent management. Talent management programs need to be carried out in universities from the talent pool, talent development to prepare talent retention to become future leaders (Ramaditya, et al., 2022). Tax officer can carry out talent development with programs to improve career development policies, maintain work balance, pay attention to working conditions, conduct training, improve lecturers' skills and competencies, and create development programs that utilize the skills of their employee (Ramaditya et al., 2022a). Moreover, talent retention programs need to be developed to keep qualified employee from leaving the organization. Several things that need to be done by tax employee are to have a competitive compensation system, strive to keep talented employee, and always maintain team member motivation by providing challenges to maintain the rhythm of working at the organization (Ramaditya et al., 2022b).

Moreover, from the level of actors, the role of the Director General of tax is to be a role model in tax office to be an example to provide clear directions and encourage and support the community in achieving their performance. Competence strengthens the leadership development process and has a dynamic reciprocal relationship with each other, namely the leader can develop his character their employee by carrying out his competence and can also continue to develop his competence by activating his character. Further, tax office must ensure optimal tax revenue. So that the Indonesian people have high hopes for the DJP agency as the Indonesian tax authority to collect revenue optimally. On the other hand, as an organization, DJP is expected to become an independent, flexible, synergistic organization, and keep up with the times. On the other hand, the internal organizational efforts that have been carried out by the DJP to achieve the mandated targets, namely optimizing potential exploration focusing on sectors that still show a significant increase in tax payments during the Covid-19 pandemic.

Lastly, executing collaborative action is needed to achieve the effective leadership (Mikulincer & Shaver, 2017). This study provides an illustration that the working environment conditions greatly affect the level of initiative and work effectiveness of leaders. Competence development and creating collaborative such as actively seeking new ideas, communicating and collaborating, being creative and committed, and solving problems systematically (Achlisson et al., 2016).

LIMITATION AND FUTURE DIRECTIONS

The study faced various limitations, showing the need for further investigations. First, the sample size was limited to tax offices based in Indonesia. Therefore, future studies should use a broader representation of tax offices in other geographic locations. Second, this study was used to create a strategic plan for implementation. Future studies should use this recommendation for their organization and make a comparison. Also, a prospective study that may use more experts should be considered to improve generalizability.

CONCLUSION

The results revealed that the makes priority strategy in Indonesia tax office for components of factor, which is human resource competence, the actor is director general taxes, objectives are to optimal tax revenue, and alternative strategies that executing collaborative action. It clarifies the role of human resource competence which leads to increased effective leadership. This study has provided a theoretical implication by giving further empirical evidence on group and exchange theory of leadership, which effective leadership shows to be collaborative leadership and achievement-oriented leadership. Thus, also this study found observed the importance of improve human resource by managing talent can enhance effective leadership in the modern globalization era (Masa'deh et al., 2017; Rambe & Mbeo, 2017).

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