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# An AHP-Based Approach for Selecting Knowledge Sharing Policies in Vietnamese Commercial Banks

Dinh Ba Hung Anh

Department of Industrial and Systems Engineering, Faculty of Mechanical Engineering, Ho Chi Minh City University of Technology (HCMUT), 268 Ly Thuong Kiet Street, District 10, Ho Chi Minh City, Vietnam

*anhdbh@hcmut.edu.vn*

**Abstract.** Nowadays, administrators increasingly stress the development of organizational culture, particularly fostering a knowledge-sharing environment in businesses to optimize employee potential and productivity. Joint Stock Commercial Banks hold a pivotal role in the national economy, especially concerning monetary operations, credit services, and payments, underscoring the importance of the payment function. Advisory staff significantly shape the bank's image, especially in these banking institutions. However, knowledge sharing among employees, crucial for organizational success, is often neglected in bank development strategies. Overlooking effective intellectual asset management can result in financial losses and hindered growth. The absence of policies and solutions aimed at enhancing knowledge sharing through improved organizational culture further impedes employee efficiency. Therefore, this study proposes an AHP-based (Analytic Hierarchy Process) approach for selecting knowledge sharing policies in Vietnamese commercial banks. Expert scoring and pairwise comparisons of criteria and policies were used as input to the AHP analysis. The results identified two key policies related to output orientation and Japanese management approaches as top priorities for improving knowledge sharing and employee performance. The research contributes a systematic methodology for integrating qualitative insights into policy selection for banks. For practice, the findings provide valuable guidance for Vietnamese bank executives and policymakers on leveraging AHP to make informed decisions when formulating knowledge sharing initiatives

**Keywords*:*** Organizational culture, Knowledge sharing, Bank employee performance AHP multi-objective optimization, Joint stock commercial bank.

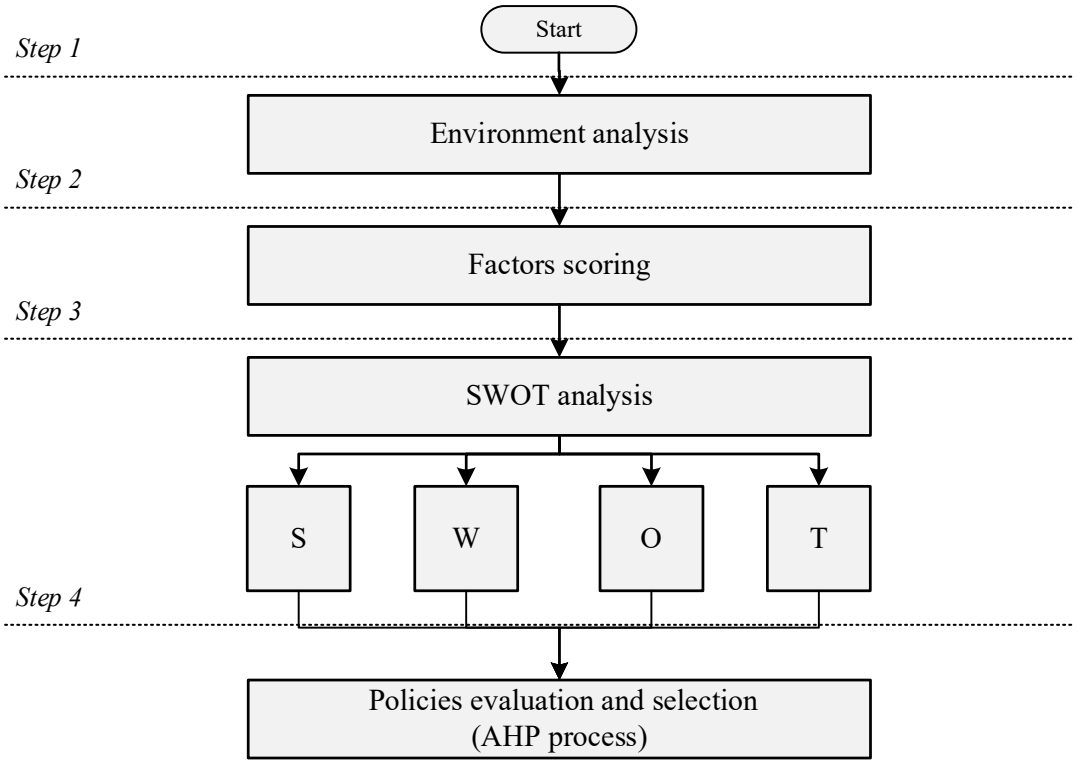
# 1. Introduction

In the context of globalization, the development of organizational culture is increasingly emphasized by administrators, especially the development of a knowledge-sharing culture within businesses to maximize employee capabilities and work efficiency. Particularly, in the current economic landscape, Joint Stock Commercial Banks in Vietnam are an indispensable sector, maintaining a crucial position in the national economy primarily through monetary operations, credit services, and payments. Advisory staff play a critical role and influence the image of a Joint Stock Commercial Banks in Vietnam. Knowledge sharing among employees is immensely vital, yet it has not been adequately prioritized for development by banks. Failure to recognize and effectively manage the intellectual asset can lead to losses, gaps, and unsustainable development for Vietnam Joint Stock Commercial Banks. Currently, the lack of policies and solutions regarding the implementation of organizational culture improvements to enhance knowledge sharing results in many limitations in the knowledge-sharing process, making it challenging to control employee work efficiency. For the field of joint stock commercial banking, previous studies on organizational culture, knowledge sharing, and job performance have not been considered holistically and are incomplete in terms of science and theory (Kucharska and Wildowicz, 2017; Masa'deh et al., 2016, Mueller, 2013). That is the reason why the author conducted the study to better analyze the relationship between organizational culture, knowledge sharing and the impact of knowledge sharing on the performance of bank employees. The paper presents the policy based as a result of the SEM analysis, policies being applied at joint stock commercial banks in Ho Chi Minh City as well as the policy experience of the world, as input to the AHP process. The objective of this study is to analyze the input policies by using the AHP optimization process and select the policy to prioritize for implementation.

This research endeavors to overcome the limitations of previous studies by building upon the achievements of numerous researchers, both domestic and international, in terms of approach, analytical methods, analytical content, and policy implications regarding the extent of the impact of VHTC on CSTT behavior and the reciprocal influence of CSTT behavior on employee HQCV. Through the process of defining criteria, weighting, and listing policies, aided by the Analytic Hierarchy Process (AHP), the author proposes various policies and managerial implications for the factors. Finally, the data processing method integrates both qualitative and quantitative approaches, ensuring a high degree of reliability and accuracy.

# 2. Literature Review

Vaidya and Kumar (2006) present 150 articles applying AHP in various fields such as engineering, manufacturing, industry, education, banking, society, politics. Ho (2008) presented a research paper on the applications of AHP in combination with other methods instead of using AHP alone. Tools associated with AHP include mathematical models, QFD, meta-heuristics, SWOT analysis, and DE. Research by Mikko (2000) conducted the analysis using the AHP process together with the SWOT. SWOT is a widely used tool in strategic decision support. Mikko (2000) has provided a theoretical framework and general application process for strategic planning, valuable for application and further research in many different fields. AHP process (Mikko, 2000) is depicted in Figure 1.




*(Source: Mikko, 2000)*

Fig.1. AHP process for authors' policy selection.

Step 1 – Environment analysis: Give environmental factors in groups: Strengths, weaknesses, opportunities and threats.

Step 2 – Factors scoring: Conduct a scoring of environmental factors to determine whether a factor is a strength or weakness, an opportunity or a threat.

Step 3 – SWOT analysis: Based on factors belonging to 4 groups: Strengths, weaknesses, opportunities and threats to propose policies.

Step 4 – Policy evaluation and selection: Take the factors with their points into the input of the AHP process for policy analysis and selection.

The study of Mikko (2000) can be applied to improve the information base for strategic planning processes. The AHP not only helps managers make more informed decisions, but it is also an effective framework for formulating strategic decisions in a variety of situations. However, also because it can be widely applied in many contexts and fields, the study only forms a general model, which has not been specified or considered deeply in the commercial banking industry. One shortcoming of this study is that it does not use any quantitative tools or software, which makes the research part lack of up-to-date information. In addition, the authors did not mention any specific solutions to make the implementation of AHP computation more efficient and easier.

Research by Tran Vinh (2016) used the AHP process as a tool to select solutions. The input to the process is our country's current policy on fast consumption demand, world policy experience and from the fast consumption demand model in the author's research. The process of AHP multi-objective optimization in Tran Vinh's study is presented in Figure 2. Based on the support of the AHP process, Tran Vinh (2016) selected the Policy on Environmental Trust and Family Influence to promote fast consumer demand because of its high score and sensitivity. However, the object of application of the study is in the fast-moving consumer goods industry, so it is not suitable for the subjects of Joint Stock Commercial Banks.

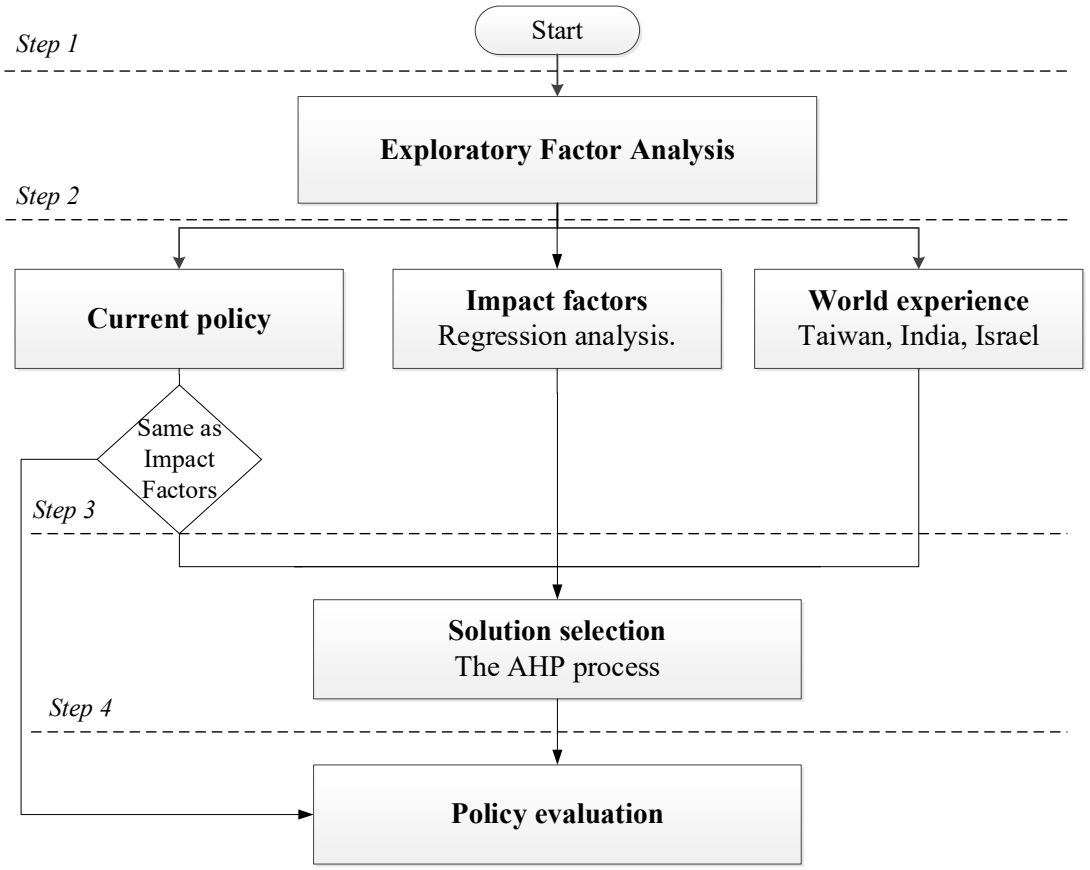
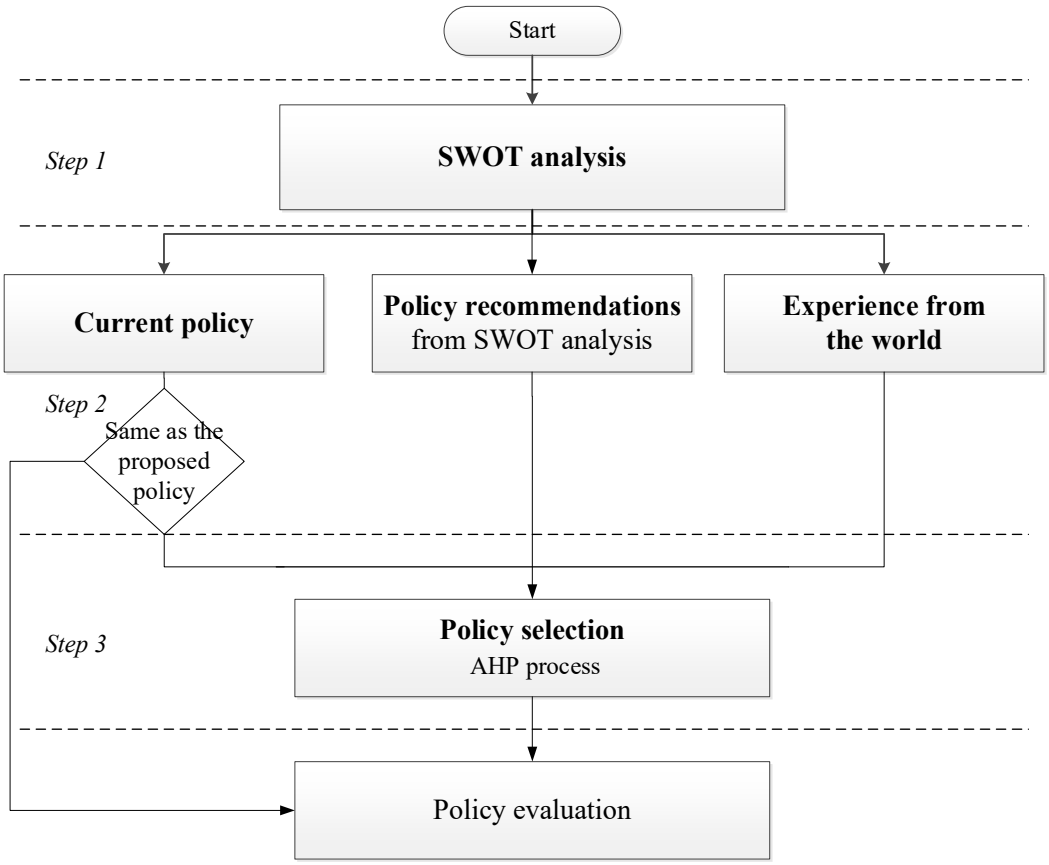



Fig.2: AHP process in Tran Vinh's study (2016)

In another aspect, author Le Thi Hoa Binh (2017) has analyzed the internal and external environment to the research object. Then use the IFE matrix to score the factors of the internal environment and the EFE matrix to score the factors of the external environment. Next, the author puts factor scores into the SWOT matrix to propose a strategy.

The study used the proposed policies from the SWOT analysis, the organization's current policy, and country experience as inputs to the AHP process (Figure 3). The AHP process is used to select the appropriate policy; Finally, the selected policy should be re-evaluated by experts to avoid the case that the policy proposal is not suitable for the actual development stage at the enterprise.



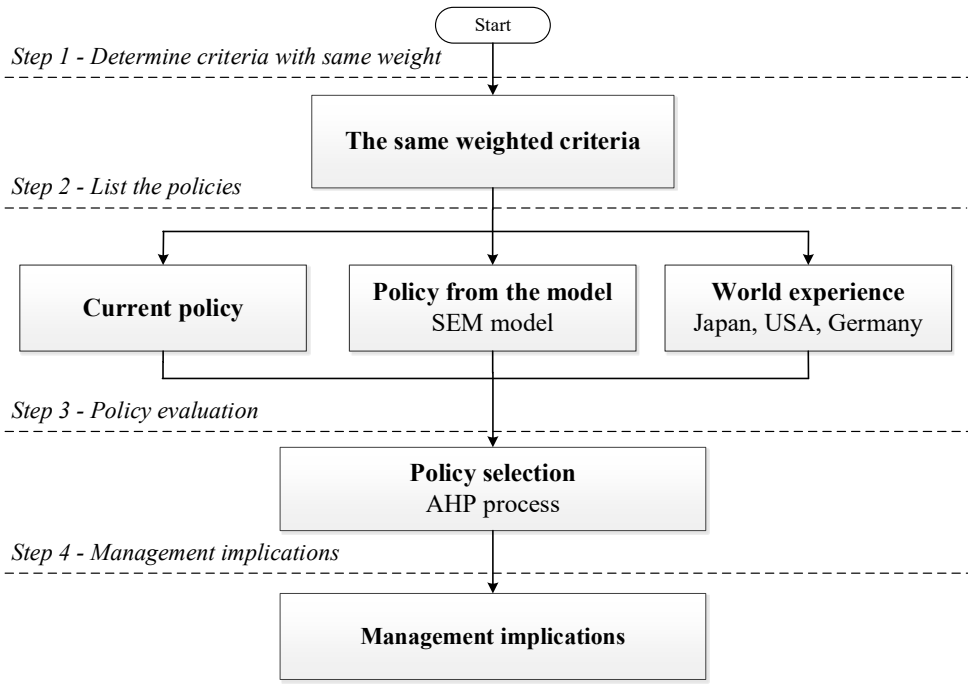

*(Source: Le Thi Hoa Binh, 2017)*

Fig.3: AHP process for policy selection by Le Thi Hoa Binh (2017)

Many authors have used the AHP process in their research, showing that AHP effectively supports tasks such as objective scoring, policy selection. AHP analysis combined with SWOT to adjust as well as integrate experience into policy making is shown in the study of Mikko (2000) and Le Thi Hoa Binh (2017). Besides, in his research, Tran Vinh (2016) also used this process to support the analysis of the results formed from the EFA exploratory factor analysis technique.

## 3. Research Methodology

The main method used in this paper is the AHP multi-objective optimization process with the weights of the criteria determined using the expert method. The alternative (policy) score is given in the form of a pairwise comparison matrix by experts based on the actual operation of a joint-stock commercial bank in Ho Chi Minh City. The details of the research procedure with a focus on the AHP process are presented in Figure 4 as follows. The first step is to select criteria with the same weights as criteria. Step 2 – List the policy as input to the AHP process with the recommended policies from the model identified in the SEM analysis. In addition, the input is the policies currently being implemented at joint stock commercial banks in Ho Chi Minh City as well as based on the experience of policies that have been successfully implemented in a number of countries. The third step - policy assessment conducts policy selection based on the AHP multi-objective optimization process as well as on the knowledge and experience of experts. Final step - Governance implication refers to policy implication.

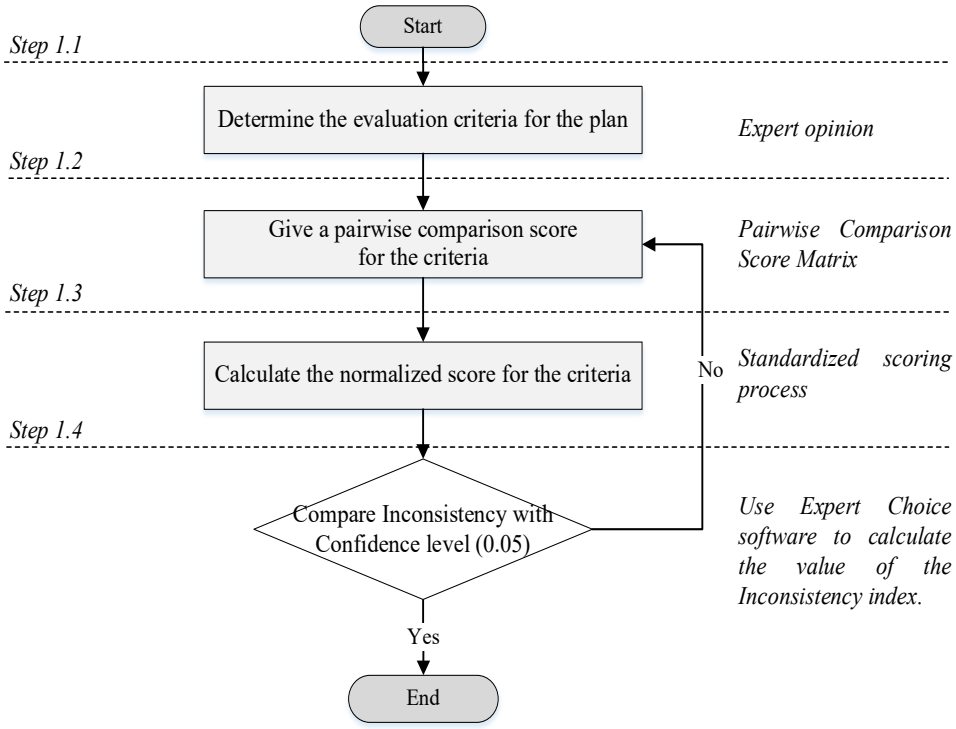



*(Source: Author's Proposal, 2023)*

Fig.4: The AHP process supports policy formulation to promote knowledge sharing.

## 3.1. Determine criteria with same weight.

Conducting a multi-objective optimization process aims to gain a deeper understanding of the impact levels of various policies and to identify policies requiring prioritized implementation. Initiating with step 1 of the outlined process in Figure 4, involving the assignment of weights, signifies the commencement. Execute this step following the procedure delineated in Figure 5. The assigned weights reflect the significance of a criterion; the total value of weights is typically normalized to 1. Employ the Inconsistency Index to validate the rationality of these weights. If the Inconsistency Index value surpasses the significance level α (often chosen as 0.05), it is concluded that the weights are not reasonable (lacking reliability).




*(Source: Author's Proposal, 2023)*

Fig.5: Procedure for determining the criterion weight value.

Step 1.1: Define the evaluation criteria: Criteria deemed important, directly influencing the outcomes of the chosen approach, based on expert opinions and group discussions.

Step 1.2: Assign scores to the criteria using pairwise comparisons, considering the relative importance of the criteria to achieve the objective. After identifying the evaluation criteria, proceed to determine the weights for each criterion. The author employs a pairwise comparison scale to score the criteria, based on the interrelationships between the criteria.

Step 1.3: Calculate normalized scores for the criteria using a three-step process:

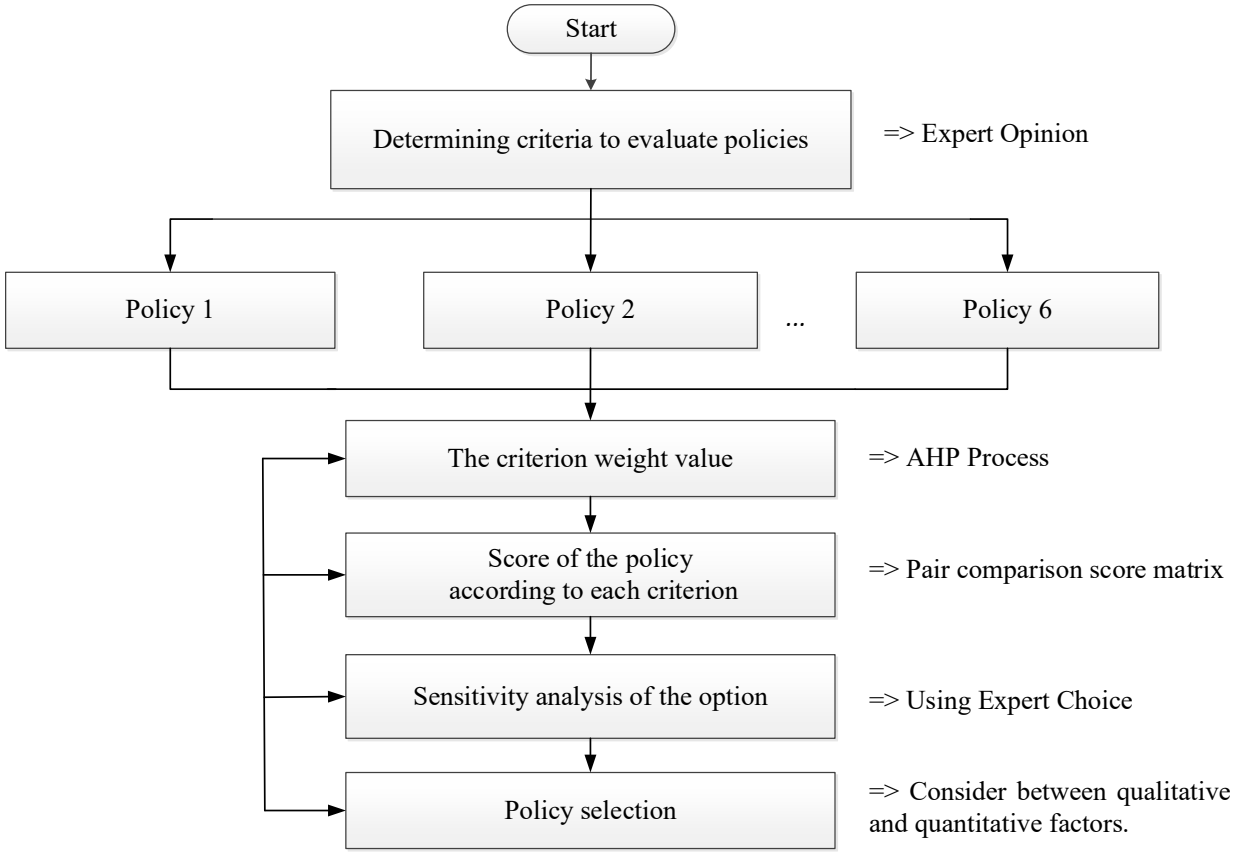
- Compute the sum of scores per column.
- Divide each score value by the sum of scores per column.
- Calculate the average score for each criterion. The author normalizes the scores for the criteria by adjusting the sum to 1 for each component of the pairwise comparison matrix. This is done by dividing the component score by the sum of scores (per column), resulting in the adjusted pairwise comparison scores.

Step 1.4: Utilize the Inconsistency Index to assess the normalized scores. If the Inconsistency Index value is < the significance level α (typically chosen as 0.05), the process is halted; otherwise, return to Step 1 and proceed to process the results using Expert Choice software, obtaining the weights and Inconsistency Index.

## 3.2. Policies evaluation

The author conducts an assessment using the Analytic Hierarchy Process (AHP) multi-objective optimization procedure to gain a deeper understanding of the implied policies and prioritize them for implementation. From the listed policies in Step 2, the author incorporates them into the AHP process for analysis. Applying the analytical process as presented in Figure 6, the author comprehends and selects the policies that need prioritization for implementation. Scores are assigned to the options (policies) for each criterion to provide the necessary input data for the AHP multi-objective optimization analysis. Subsequently, the Expert Choice software generates the scoring results. To analyze sensitivity, the Expert Choice software also outputs sensitivity analysis results. The policy with the highest score

and sensitivity is then selected.




*(Source: Author's Proposal, 2023)*

Fig.6: Policy selection process

# 4. Policy Listing

This section presents the inputs to the AHP process including the results from the SEM linear structural analysis including: Organizational structure, knowledge dedication, output orientation, and leadership. Note that the main current of joint stock commercial banks in Ho Chi Minh City is output orientation and leadership, which coincides with the results from the SEM results so it is not presented again.

## 4.1. Results from SEM analysis and current policy

### *4.1.1. Organizational structure*

The standardized regression coefficient of the organizational structure factor is at the highest level (0.538), demonstrating the importance of this factor to work performance. Improving the organizational structure so that it is lean and efficient, with the connection between departments and employees, contributing to increasing operational efficiency, making knowledge sharing easier. Policy implications include: (1) Arrangement of management departments and divisions; (2) Flexible organizational structure; (3) Appropriate organizational structure for knowledge transfer. Policies related to Organizational Structure are denoted CS3.

### *4.1.2. Knowledge dedication*

Knowledge dedication (KD) is correlated with knowledge sharing at $\beta = 0.295$. In which, knowledge dedication affects the work performance of bank employees at 0.37. Dedicating knowledge is one of the biggest challenges for managers, because employees often don't want to participate in this sharing. Dedication not only takes time but can also become a threat to their position in the organization. Policies related to Organizational Structure are denoted CS4.

#### *4.1.3. Output orientation*

Based on the author's previous research (Dinh Ba Hung Anh, 2023), output orientation correlates with organizational culture at an impact level of 0.1. Raising wages for employees will help employees try to complete work on time, increasing work productivity. In addition, employees working at the bank should be trained in professional skills in customer consulting and handling work in accordance with the bank's procedures; ensure that they are highly knowledgeable about the other duties of the bank. The rating is to help employees try to complete the job well on time and know the work they need to do at the bank. For policy analysis to prioritize deployment by AHP multi-objective optimization process, this study assigns output orientation by identifier CS1.

#### *4.1.5. Leadership*

Leadership (LS) correlates with organizational culture at an impact level of 0.174. Some of the proposed policy implications include: (1) Creating opportunities for staff to learn and improve professional knowledge; (2) Help employees develop skills and ability to solve problems; (3) Capable leadership, vision and executive ability; (4) Leaders always help, answer questions and motivate employees; (5) Guide employees to find solutions to their own problems; (6) Treat fairly and always acknowledge employees' contributions. Policies related to leadership are denoted CS2.

### 4.2. Policy experience in some countries

### 4.2.1. Experience in performance management from the US - Germany

Konrad and Deckop (2001) has applied measures to evaluate and comment on emulation. To evaluate performance, the US government used the balanced scorecard method with four criteria: (1) Customer orientation; (2) Financial orientation; (3) Orienting the internal operation process; (4) Orientation for improvement and development. The US policies focused on implementation include: Work and relationships, Optimal performance, Training.

German knowledge-sharing governance, presented by Laura Martina Zurheiden (2017), encompasses the following policies: (1) Focus on goals and value face-to-face communication; (2) Working hours are for work only. To serve the content of policy analysis in order to understand as well as understand the priority in implementation, the study of the symbol of policy experience from the US - Germany is CS5.

### 4.2.2. Japanese experience

According to Japan's Abenomics economic policy, the following policies apply: (1) Lifetime employment; (2) Employee participation in the decision-making process; (3) Quality inspection team; (4) Team work. In order to serve the content of policy selection to prioritize implementation, Japan's policy experience is denoted CS6.

## 5. Policy Selection (AHP process)

Conduct a multi-objective optimization process to better understand the impact of policies and to identify which policies should be prioritized for implementation. Start by implementing the task of determining the weights. Perform this step according to the procedure shown in Figure 5. Weights represent the importance of a criterion; The sum of the weights is usually adjusted to 1. The use of the Inconsistency index to validate the reasonableness of the weights. If the value of the Inconsistency index is greater than the significance level α (usually chosen as 0.05), the conclusion is that the weight is not reasonable (unreliable).

Score the evaluation criteria as follows:

Table 1. Pairwise comparison score matrix for evaluation criteria

| Criteria | Teamworking | Engagement | Belief | Communicate with colleagues | Leadership concern | Commend and reward |
|---|---|---|---|---|---|---|
| Teamworking | 1 | 3 | 4 | 2 | 3 | 3 |
| Engagement | 1/3 | 1 | 2 | 2 | 1 | 2 |
| Belief | 1/4 | ½ | 1 | 1/4 | 1/3 | 1 |
| Communicate with colleagues | 1/2 | 1/2 | 4 | 1 | 1 | 1 |
| Leadership concern | 1/3 | 1 | 3 | 1 | 1 | 1 |
| Commend and reward | 1/3 | 1/2 | 1 | 1 | 1 | 1 |
| Total | 3 | 7 | 15 | 7 | 7 | 9 |

*(Source: Author's calculations, 2023)*

The weighted results of the evaluation criteria for the option are extracted and presented in Table 2.

Table 2. Weight results of each option evaluation criteria

| | |
|---|---|
| Teamworking | 0.353 |
| Engagement | 0.174 |
| Belief | 0.070 |
| Communicate with colleagues | 0.151 |
| Leadership concern | 0.144 |
| Commend and reward | 0.108 |

*(Source: Author's calculations, 2023)*

Based on the Inconsistency index to evaluate the normalization score: If the Inconsistency index value < the significance level α (selected by 0.05) will stop the process, otherwise go back to Step 1; continue to process the results using Expert Choice software, the results of the weights and the Inconsistency index are presented in Figure 7.


Fig.7: Weight and Inconsistency results for the set of criteria

The Inconsistency index of the set of criteria reached 0.04 ≤ significance level α = 0.05, so the values of these weights are reliable. The conclusion uses the criteria together with the weight values shown in Table 2 as criteria for evaluating the plan.

## 6. Policy deployment solution

The author conducts a policy review based on the AHP multi-objective optimization process to better understand the implied policies and select them to prioritize in implementation. From the policies listed above, the writer includes the AHP process for analysis. There are six policies that are considered inputs to the AHP process with symbols CS1 to CS6 shown in Table 3.

Table 3. Input policy of the ERP process

| | CS1 | CS2 | CS3 | CS4 | CS5 | CS6 |
|---|---|---|---|---|---|---|
| Explaination | Output Orientation | Leadership | Organizational structure | Dedication of knowledge | American, German experience | Japanese experience |

Score the alternatives (policies) according to each criterion for enough process input data to conduct the AHP multi-objective optimal analysis process. The next section presents the scores of the options (policies) according to the evaluation criteria listed in Table 2.

To analyze the policy, the thesis follows a 2-step process:

Sub-step 1: Scoring, use Expert Choice software to export the score results.

Sub-step 2: Sensitivity analysis, similar to using Expert Choice to output sensitivity results, should choose the policy with the highest score and sensitivity.

The results of the priority order of policies calculated by Expert Choice software are shown in Figure 8.

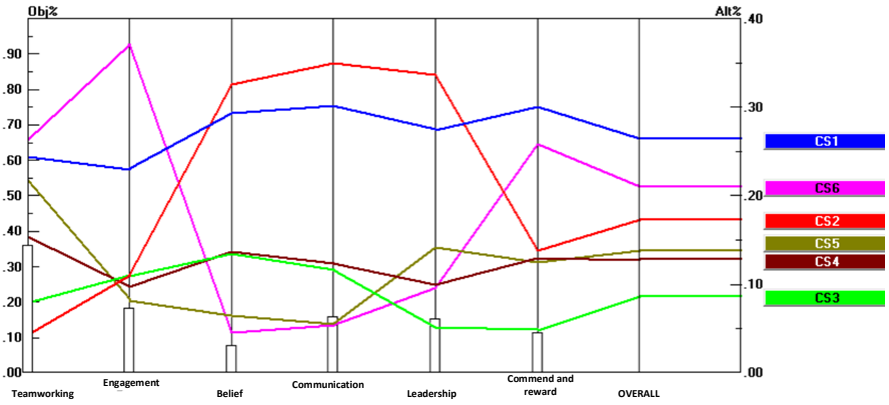



Fig.8: Score chart of policies

From Figure 8, we see those policies 1 (output orientation) and policy 6 (Japanese experience) have the highest scores, meaning that these two policies should be prioritized for implementation. The results of the policy sensitivity analysis according to the group work criteria (weight equal to 0.353). Similar analysis for the output orientation criteria, openness and openness, the writer finds that policy 6 (CS6, policy experience from Japan) is most sensitive to the evaluation criteria.

In conclusion, based on the results of sensitivity analysis, we find that policy 6 should be preferred over 1 even though policy 1 currently has a higher score.

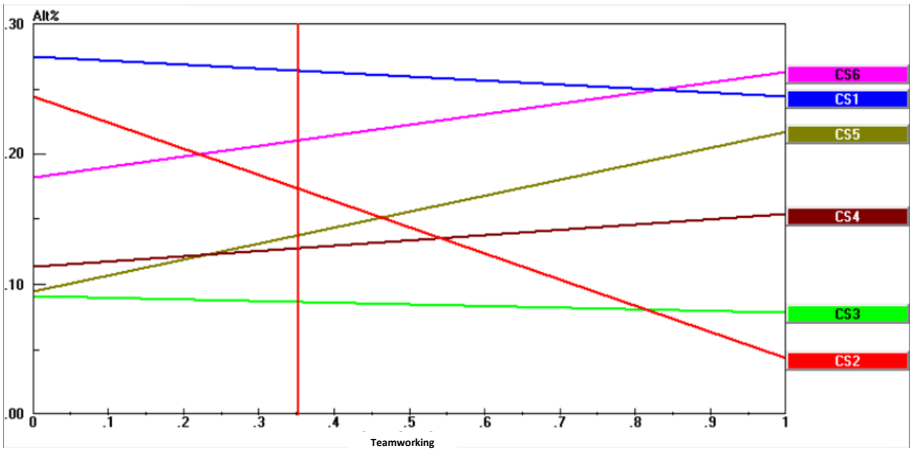



Fig.9: Sensitivity analysis results (teamwork criteria, Experchoice)

In addition, in the space of two important criteria related to knowledge sharing behavior is teamwork and engagement. Policies 1 and 6 have higher scores and separate distribution than the rest of the policies. Based on the results in this policy distribution chart, the author prioritizes to choose two policies CS1 and CS6.

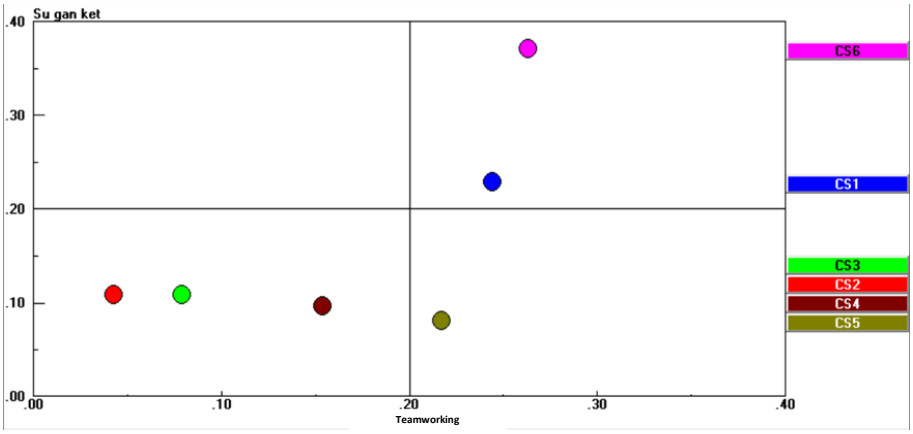



Fig.10: Policy distribution results (Teamwork and Engagement Criteria)

Combination of option score (Figure 8) with sensitivity (Figure 9) and policy distribution (Figure 10), in conclusion, it is necessary to prioritize the selection of policies 1 and 6 to develop macro policies to promote knowledge sharing in order to improve job performance.

The results from the SEM model concluded that organizational structure has the strongest interaction with organizational culture (normalized impact level: 0.538). Next, organizational culture affects bank employee performance at 0.14 (normalized). Similarly, interactive knowledge dedication to knowledge sharing is at 0.295; and knowledge dedication affects job performance at 0.37. In contrast, the results of the proposed AHP process should prioritize the implementation of two output orientation policy groups (under the organizational culture group) and policy experience from Japan (not shown in the SEM model). Thus, the results of the AHP process have supported implementers to choose policies to prioritize in implementation. In addition, this AHP process also supports the integration of experience (qualitative) into the policy implementation process.

## 7. Conclusion

This research makes important theoretical and practical contributions by demonstrating the value of AHP as a systematic approach for knowledge sharing policy selection in banks. The findings provide insights into how AHP can help integrate qualitative expertise into decision-making, leading to the identification of output orientation and Japanese management policies as key priorities. For Vietnamese banks and policymakers, this study highlights the potential of AHP to improve the design of impactful knowledge sharing initiatives through a transparent, consistent framework. Future research can build on this work by applying AHP in other contexts, comparing it to other methods, and incorporating additional criteria. Overall, the study takes a meaningful step toward using AHP to enhance knowledge-based policymaking in organizations.

Furthermore, the study also presents certain limitations. Policies need to be updated, revised over time, or potentially phased out and replaced with new, more relevant policies to ensure their integration into daily life, resonate with the populace, and have a long-lasting impact on the broader economy. Hence, leadership must enact outcome-oriented policies for employees to strongly encourage the sharing of knowledge, ultimately enhancing work effectiveness. The research findings are based on policies and existing experiences from various countries globally, and may not entirely align with the specific context of Vietnam due to cultural disparities. The proposed dissertation policies primarily rely on quantitative data, sometimes deviating from actual circumstances. Evaluation criteria for the

proposed approaches are primarily based on reference models, occasionally lacking comprehensive grounds for policy selection. Therefore, policy selection may be accurate for the research target but may not be universally applicable to all scenarios.

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