

Decision Support System as The Measurement of Amil Zakat Competency

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Abstract—BAZNAS (National Amil Zakat Board) is a nationally formal institution that has been established based on act of number 23 in 2011, to centrally and coordinatively manage zakat in Indonesia. BAZNAS has released strategic plan issues to improve Amil's competencies and capacities. BAZNAS, however, is still lack of valid data to objectively, accurately and quickly measure the performance of its human resources (Amil) as the basis of human resources development and recruitment plan and strategy. In addition, an implementation of IT becomes a part of BAZNAS's strategic plans. This research aimed to design a DSS (Decision Support System) implementation prototype to measure BAZNAS Amils' competencies (i.e. soft- and hard-skills) to support the decision making process of Amils recruitment and the development in BAZNAS. This competency is categorized into prerequisite and non-prerequisite competencies. The result of AHP method showed islamic behavior as the main priority of competency of BAZNAZ employees with weighted score of 0.341; the second priority was internal competencies with weighted score of 0.294; the third priority was general competencies with weighted score of 0.290; and the fourth priority was external competencies with weighted score of 0.075. The implementation of DSS is expected to support the BAZNAS strategic issues.

Keywords—Ami; Badan Amil Zakat Nasional (BAZNAS); Analytical Hierarchy Process (AHP); Competency; Decision Support System (DSS)

I. INTRODUCTION

The development of the global economy affects the Indonesian economy that the national economic growth is still experiencing difficulties in terms of equity of prosperity. According to BPS, in March 2016 there are still 28.01 million of Indonesians who earn below the poverty line of BPS version, which is 354.386 rupiah per capita per month in average. The problem of poverty can actually be solved by zakat, given that Indonesia is the most populous Muslim country in the world. By having more than 207.2 million Muslims according to the National Statistic Agency or BPS (2010), this is equivalent to 87.5 % of the total population [1]. In Saudi Arabia and Sudan, for example, zakat has been officially regulated and required to Muslim society so that the poor receive monthly subsidies and it makes their social gaps and crime rates tend to low in both countries [2]. Collaborative

research conducted by BAZNAS and Institut Pertanian Bogor (IPB) estimated potential of zakat collection in Indonesia could reach about Rp 217 trillion every year [3]. Based on data from the zakat forum, zakat funds were collected through institutions amounting to Rp 2 trillion in 2012, Rp 3 trillion in 2013, while in 2014 amounted to Rp 3.2 trillion. There has been an increase in zakat over the last three years when compared to the zakat potential in Indonesia which was examined by IDB in 2013 reaching 217 Trillion [4].

Many possibilities become factors that cause the not optimal management of zakat. Hafidhudin (2008) identifies it into four factors, namely: (1) ineffectiveness of zakat collecting organizations, (2) high administrative costs for managing zakat, (3) information on the importance of paying ineffective zakat and (4) mistrust of the muzakki (zakat payers) of the Zakat Management Organization (OPZ) [5]. Most of the factors of zakat payments have a close relationship with the performance of zakat manager institutions. According to the results of the research showed that simultaneously (jointly) competencies significantly influence employee performance [6]. Other research show that internal control system and Amil competence influated the Financial Reporting Quality (FRQ) [7]. As an effort to increase the acceptance and management of zakat, it is deemed necessary to have a measurable system that can monitor, calculate and evaluate the competence of Amil.

There are several tools to measure BAZNAS competence; yet they are not based on IT (Information Technology), One of the real problems that often appear on the assessment process which occurs manually and unsystematically is potential to bring subjectivities up for all Amil BAZNAS competency measurement. This issue can lead to inaccurate each Amil competency assessment and incompatibility in Amil's position placement according to their competency, this condition could give impact to acceptance optimization and zakat management in Indonesia. In fact, according to Strategic Plans of BAZNAS 2016, information technology dan human resource is the backbone of national zakat management that is need to be online systemized.

The development of information technology enables decision making and representation of information can be done quickly in accordance with the development of the use

computer [8]. Decision making using specific data and models in computer-based systems can help solve a variety of unstructured problems. Decision Support System (DSS) is a computer-based information system that is used to make decisions on a company or organization [9]. This system can be developed, able to support data analysis and decision modelling, oriented on planning on the future and related with evaluation. The decision in measurement of Amil competence involves with many factors that need to be considered, and its necessary to use a particular method. These factors need to be kept in mind by its contribution to measure Amil competence so that the criterion and strategic planned are right to get an optimal decisions. The AHP offers new possibilities for tackling this problem, because it is a multi-criterion methodology that deals with both tangibles and intangibles in an integrated and comprehensive manner within a hierarchic structure that relates people to the criterion and to the goals of the organization [10].

Intangibles competence assessment in this research is supported by 360° measurement method. The 360° competency assessment (feedback) process not only confirmed the competency level of the assessment participants, but also identified managerial strengths and weaknesses of BAZNAS Institution at individual, team and organizational levels. In addition to self-rating, 360° assessment methods evaluate capability from different organizational perspectives such as supervisors, peers, and subordinates, which provide incremental validity beyond ratings from a single source (self-rating) [11]. As a mathematical procedure, it uses both available quantitative data and the judgments of decision makers and experts to arrive at an overall optimum answer. The AHP calculation in this research is handled by Expert Choice 11 software. This software is widely used by previous researchers to do the weighting based on Analytical Hierarchy Process (AHP) method, because using this software more easily understood [12].

As the social gap potentially leads to subjectivity in measuring BAZNAS Amils' competencies, researchers assumed a tool that objectively, systematically and measurably measures competency is needed -a systemized IT-based tool that can monitor competencies to support the evaluation process, the competency, the placement and the improvement of Amil capacity. In this research, users can measure their own competency and ask another organizational perspectives to give assessment using 360° method. This way makes final value of Amil competence can be assessed objectively and transparently. All assessment process in this system can be accessed and used online. Results of the research can be used as a reference for BAZNAS to implement strategic issues in the central region and also area for increase selection competency, mutation, promotion and Amil placement using information technology.

II. LITERATURE REVIEW

The main activity of BAZNAS is to collect ZIS (Zakat Infaq Shadaqah) from muzakki (zakat payers) and distribute them to mustahik (zakat receivers) who have a right to receive

zakat according to religion clause [13]. Along with today and future demands, BAZNAS needs to design a national competency standard for Amil. Recruitments, rewards and promotions of competency-based human resources are generally not based on the competencies of employees [14]. The results of Chasalow's study in 2009 identified that organizational competency is one of ways to achieve the company goals. Competence can involve the activity of creative entrepreneurs and teams [15]. Competence provides evaluation and training so that the employees develop [16].

This descriptive research used survey method to collect primary data by questionnaires and analyzing them quantitatively. This research used primary and secondary data. The primary data were acquired from questionnaires, direct interviews with Amil's, users in HRD of BAZNAS, and experts in BAZNAS. The secondary data were taken from journals, books, websites, and literatures of study. The list of respondents involved in making the questionnaire can be seen in Table 1 as follows.

Table 1. Resources List of this Research

No.	Position of Respondent
1	Commissioner of BAZNAS
2	Head of BAZNAS division
3	Professional psychologists
4	Researchers concerning HR
5	Director of BAZNAS
6	Heads of division (leveled as manager)
7	Academic researchers who understand the terminology of Islam and zakat
8	Employees of BAZNAS
9	Manager training and talent of Multimedia Nusantara
10	Deputy Director of BAZNAS Study Center

The data were analyzed with several tools: internal and external competencies were analyzed by using Expert Choice 11 model which was an advanced development of AHP; questionnaires, especially islamic behavior, were analyzed by likert and internal scale. The benefit of AHP method is that since judgment values from equal comparisons are based on experience, intuition, and also on physical data, the AHP may deal with the qualitative and quantitative aspects of a decision-making problem [17]. The weight obtained is a consistent weight that is qualified if the value of inconsistency ratio is smaller or equal to 10% or 0,1. This weighted score is perceptual or opinion, so it must be done by people who understand the vision, mission, strategy, and condition of the institution. The steps of data processing can be seen in Figure 1.

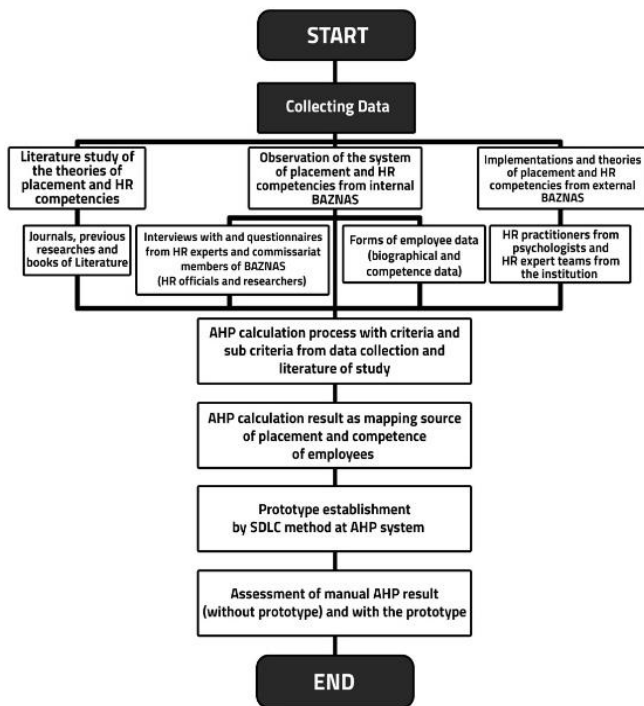


Figure 1. Data Processing Procedure

One of the BAZNAS strategic issues is to improve Amil's competencies and capacities. Its hierarchy can be seen in Figure 2. There are two competencies namely (Prerequisites non prerequisite) and (Visible and Hidden Competence) [18].

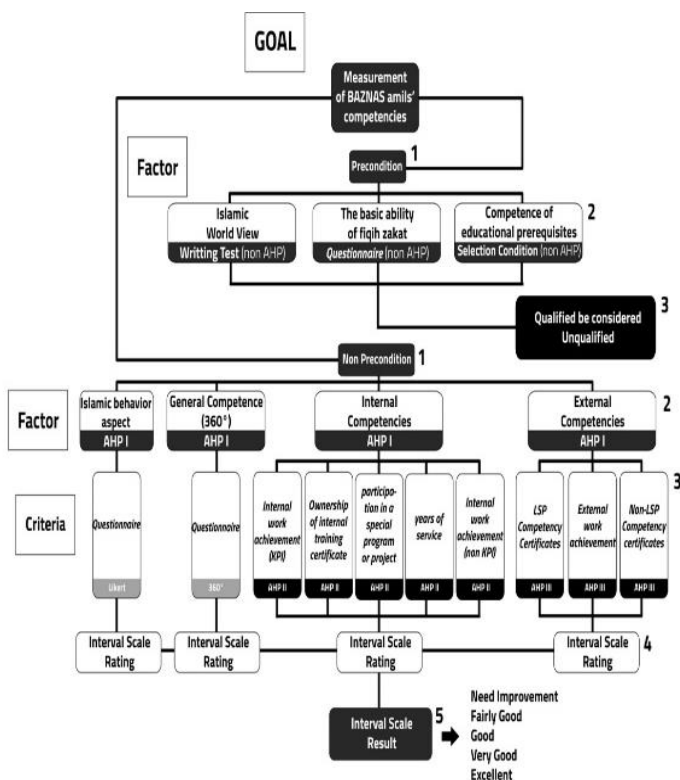


Figure 2. Amil BAZNAS's Hierarchy of Competency Measurement

Internal competency as a factor of BAZNAS Amils' competencies consist of :

1. Internal Work Achievement (KPI)
Achievements achieved by Amil within internal area shown by the value of Key Performance Indicator (KPI), at least meet or exceed the target or with other awards.
2. Internal Work Achievement (non KPI)
Achievements achieved by employees within internal area and they are beyond the KPI's assessment. Work achievements unrelated to KPI within the internal of BAZNAS are achievements that let employees be appointed, as their competencies, to get a better position.
3. Participation in Special Projects / Programs
Amils who are appropriate to the needs of the project with his active ideas that accelerate the success of the project will surely get the trust from BAZNAS management.
4. Internal Training Certificates
BAZNAS Amils' competencies proven by certificates are very important in BAZNAS. The benefits of competency certification for the institution are increasing productivity, reducing work errors, increasing skillful and motivated employees.
5. Years of Service
Employees with longer years of service are also generally better in their work experiences than the new ones; it also becomes the institution's consideration for promotion and displacement.

External competency as a factor of BAZNAS Amil competencies consist of :

1. Ownership of LSP Competency Certificates
Certificates from LSP are certificates issued by formal external competency-based training institutions and relate to the employees' competences.
2. External Work Achievement
The external work achievement is still one of the considerations of employees' competence even though it is not conducted by BAZNAZ. The external work achievement held by external BAZNAS was acknowledged regionally / nationally / internationally, such as winning the Arabic speech contest at LIPIA institution.
3. Ownership of Non LSP Competency Certificates
The ownership of certificates issued by non-LSP external training institutions supports Amils' competencies. The non-LSP certificates (nationally or internationally) can be a reference but not a state-issued certification standard.
4. Employee selection strategy with DSS (Decision Support System) application

III. RESULTS AND ANALYSIS

A. Preliminary Data

Data source to be analyzed with AHP as Criterion of Amil BAZNAS measurement can be seen on Table 2

Table 2. Classification Level

Level Objective	Level Criterion	Level Sub Criterion	Method of Measurement
Competence measurement of BAZNAS Amil	General Competencies	-	360 ⁰ Assessment
		Internal Work Achievement related to KPI	Questionnaires
	Internal Competencies	Training Certificates	Questionnaires
		Participation in Special Projects or Programs	Questionnaires
		Years of service	Questionnaires
		Internal Work Achievement unrelated to KPI	Questionnaires
	External Competencies	LSP Competency Certificates	Questionnaires
		External Work Achievement Non-LSP	Questionnaires
		Competency Certificates	Questionnaires
	Islamic Behavior	-	Questionnaires

The results of data processing using AHP criteria can be seen in Table 3. The matter of AH decisions can be constructed as a multilevel diagram starting with the goals, then the criterion of first level and the final alternative.

Table 3. Weighted Score of Criterion

Criterion	Sub Criterion	Criterion Weight	Sub Criterion Weight
General Competencies	-	0.290	-
	Internal Work Achievement related to KPI		0.492
	Training Certificates		0.075
Internal Competencies	Participation in Special Projects or Programs	0.294	0.167
	Years of service		0.048
	Internal Work Achievement unrelated to KPI		0.218
	LSP Competency Certificates		0.543
External Competencies	External Work Achievement	0.078	0.346
	Non-LSP Competency Certificates		0.112
Islamic Behavior	-	0.341	-

B. Standard Priority of BAZNAS Amils' Competencies

This is a sequence of weighting criterion of Standard Priority of BAZNAS Amil's competencies using AHP :

Table 4. The Sequence of Criterion Rank based on Weighted Score

Criterion	Priority/ Rank
Islamic Behavior	1
Internal Competencies	2
General Competencies	3
External Competencies	4

Islamic behavior is a major factor in the standard of BAZNAS Amil competencies. An Amil must have a religious character around the nearest neighborhood. The main factor of internal competencies was the internal work achievement (KPI) with quality value of 0.492, the second priority was the internal work achievement (non KPI) of 0.218, whereas the third priority was the participation in special projects / programs of 0.167, internal training certificates of 0.075 and the fifth was the years of service of 0.048. Whereas, the main priority factor of external competencies was the ownership of LSP competency certificates with the quality value of 0.543. The second priority was the external work achievement of 0.336, and the third was the ownership of non-LSP competency certificates of 0.112.

C. Implementation of AHP Calculation on DSS Amil Online

In the previous section of the discussion has been submitted about the criterion, the AHP sub criterion along with the weight and priority score obtained from the calculation of Expert Choice 11. Furthermore, the results of these calculations are applied to the application, namely DSS Amil Online. Each Amil competency measurement criterion has a maximum limit (highest value) and minimum limit (lowest value) from the total results of filling out the form (containing questions and each question has a score) by each Amil who has been multiplied by the weight of each criterion from the AHP calculation results. The following is a table containing the maximum and minimum limit values of each criterion.

Table 5. Maximum and Minimum Score Limits for each Criterion

Criterion	Score		Range
	Maximum	Minimum	
General Competencies	26.100	10.440	15.660
Islamic Behavior	17.050	3.410	13.640
Internal Competencies	0.189	0.067	0.122
External Competencies	0.050	0.025	0.026

Then each of these criterion is categorized into the Likert scale using 5 categories namely :Excellent, Very Good, Good, Fairly Good, and Need Improvement. Each category has the following values.

Table 6. Assessment categorization of each criterion

Criterion	Kelas	Score		Rate
		Low Limit	Upper Limit	
General Competencies	Need Improvement	10.44	13.572	1
	Fairly Good	13.573	16.705	2
	Good	16.706	19.838	3
	Very Good	19.839	22.971	4
	Excellent	22.972	26.100	5
Islamic Behavior	Need Improvement	3.410	6.138	1
	Fairly Good	6.139	8.867	2
	Good	8.868	11.596	3
	Very Good	11.597	14.325	4
	Excellent	14.326	17.050	5
Internal Competencies	Need Improvement	0.067	0.091	1
	Fairly Good	0.092	0.116	2
	Good	0.117	0.141	3
	Very Good	0.142	0.166	4
	Excellent	0.167	0.189	5
External Competencies	Need Improvement	0.025	0.030	1
	Fairly Good	0.031	0.036	2
	Good	0.037	0.042	3
	Very Good	0.043	0.048	4
	Excellent	0.049	0.050	5

To get the final classification results, assessment categorization needs to be converted to interval scale as shown in Table 7.

Table 7. Upper and Lower Limits of the Final Classification Results

Final Classification Result	Rate	Lower Limit	Upper Limit
Need Improvement	1	1.000	1.800
Fairly Good	2	1.801	2.601
Good	3	2.602	3.402
Very Good	4	3.403	4.203
Excellent	5	4.204	5.000

The following figure is the resume of final classification result in the simulation calculations shown on the website www.amilonline.id.

Hasil Klasifikasi Akhir					
Kriteria Utama	Nilai	Kelas	Rate	Bobot AHP 1	Hasil
Islamic Behavior	11.935	Very Good	4	0.341	1.364
Kompetensi Umum	21.388	Very Good	4	0.290	1.16
Kompetensi Internal	0.083	Need Improvement	1	0.294	0.294
Kompetensi Eksternal	0.025	Need Improvement	1	0.075	0.075
Total					2.893
Need Improvement				1.000 - 1.800	
Fairly Good				1.801 - 2.601	
Good				2.601 - 3.400	
Very Good				3.401 - 4.200	
Excellent				4.201 - 5.000	

Figure 3. Interval Scale Rating

In the final classification (contained in the "Nilai" column) the values in each criterion are obtained from filling out the questionnaire and a number of questions that have a score, then converted into a rating form according to the scale level value. In this simulation Amil obtained Very Good scores (4) on Islamic Behavior assessment, Very Good (4) on General Competency, Need Improvement (1) for internal competency, and Need Improvement (1) on External Competencies. In each assessment, the rating of each category is multiplied by AHP weight from each criteria. Then the results of each multiplication are summed and classified into the category rating range. The total value obtained by Amil is 2,893, the value is in the range between 2,601 to 3,400, so it can be concluded that the Final Classification Result for the Amil is Good.

D. DSS Amil Online

Online registration that is integrated with the company's database will facilitate the company to record the database of the prospective employees and it saves costs in employee recruitment. In general, DSS applications to be developed can be seen in the diagram in Figure 4.

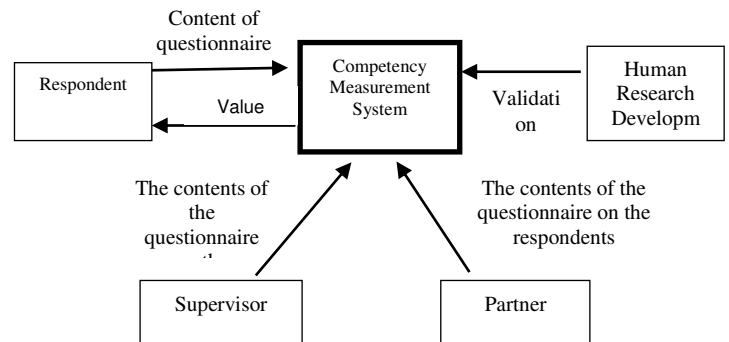


Figure 4. Context Diagram

Respondents are AMIL or BAZNAS candidates who become the object of the competency assessment by filling out the questionnaires and then further processed in the DSS. Supervisor, partner and HRD are part of the assessor and validator team. Output in this DSS is the competency level of respondents that needs to be followed up by BAZNAS internal management. The system by splitting each process at context diagram into several processes that describes the more detail system can be seen in Figure 8. The process of competency measurement system will be logically described into several stages of competency assessment, such as prerequisite and non prerequisite competency assessment with interval scale rating value as output.

Subject	Strategic Initiatives
Online Amil DSS Application	BAZNAS is expected to establish a standard measurement that matches the level position of Amil in an organization and it is implemented as Amil DSS application.
Evaluation & Monitoring	BAZNAS is expected to conduct periodic evaluations of the Amil's competency assessments based on DSS as continuous monitoring and improvement of Amils' capacities
Development of BAZNAS Amils' Competencies	BAZNAS is expected to arrange and set the types of trainings related to the development of Amils' competencies based on the result of the measurement on DSS implementation

Figure 5. Detail System Diagram

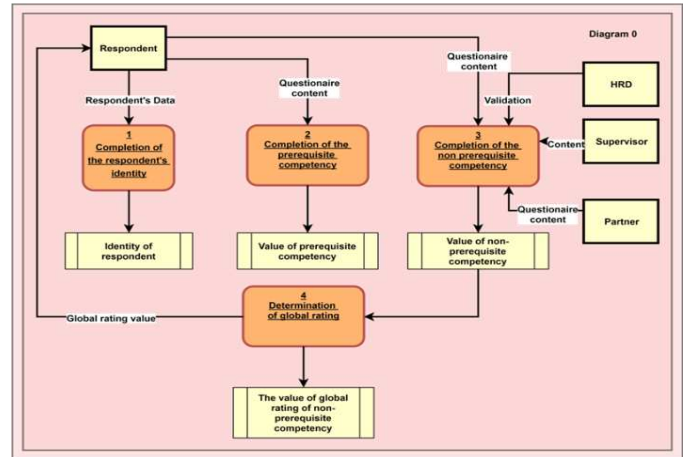


Figure 8. Total Rating

The competency assessment by DSS at www.amilonline.id showed the data of the system of BAZNAS employees' competencies are equipped with *score* and *result* that can be used as a recommendation for decision makers for selecting and placing of whether or not an Amil has competencies.

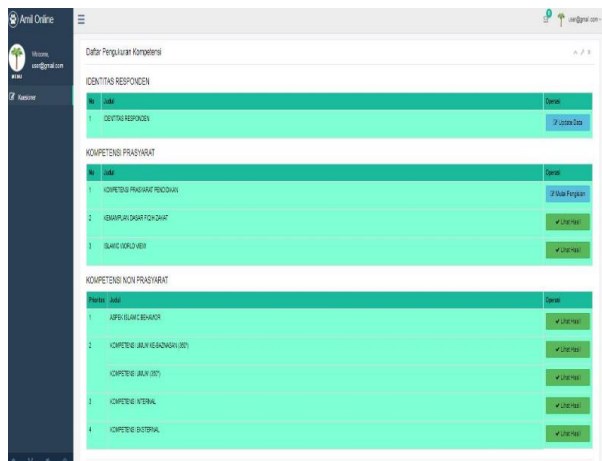


Figure 6. Display of Questionnaire for Respondents' Identity

The following images is an example of an online DSS display that has been completed by Amil on the Prerequisite form www.amilonline.id.

RESUME NILAI			
IDENTITAS RESPONDEN			
Nama	TOTO KURNIAWAN		
Sex	L		
Jabatan	Kopda (Dini) / Dini		
Divisi	Koridoran Pengumpulan, Komunikasi Dan Informasi Zakat Nasional		
KOMPETENSI PRASYARAT			
Standar Kompetensi	Nilai Target	Nilai Maksimal	Status
KOMPETENSI PRASYARAT PENDOMAN			
KEMAMPUAN DASAR FIQH ZAKAT	100	80	Mencapai & Sangat
ISLAMIC WORLD VIEW	100	80	Mencapai & Sangat
KOMPETENSI NON PRASYARAT			
Nilai Maksimal (2.24)	Nilai Maksimal	Nilai Tercapai	
Penilaian aspek internal Subtota	58	41	
	17,89	11,81	

Figure 7. Prerequisite Form Display of www.amilonline.id

Kompetensi Umum (0.296)	
Need Improvement	18.44 - 13.572
Fairly Good	13.573 - 16.705
Good	16.706 - 19.838
Very Good	19.839 - 22.971
Excellent	22.972 - 26.100

Kompetensi Internal (0.254)	
Prestasi Kerja Internal	0.305
Keperluan sertifikat pelatihan internal	0.05
Keikutsertaan dalam Project/Program Khusus	0.112
Masa Kerja	0.03
Prestasi Kerja Internal (Non KPI)	0.146
Total	0.643
	0.189

The result of strategic initiatives can be seen in Table 8.

Table 8. Result of Strategic Initiatives

Previous researches have used AHP as a decision support tools, including the case of lecturer selection in journal with title *DSS using AHP in Selection of Lecturer* that has scope of educational research based on several criterion such as Education, Ability, Knowledge, Experience, and Personality. It shows that pairwise comparison done by decision makers is consistent. Another research, the AHP method was used in employee performance appraisal at one of university in Jakarta, in this research, performance measurement criteria used the provisions of the Human Resource Scorecard perspectives which included Financial, Customer, Internal Business Process, Learning and Growth in achieving institutional strategy. Both of two researches need to be followed up/ built as an application system. While, this research do design and build an online DSS combining with AHP and 360 measurement methods. The determination of criteria refers to the Spencer Competency theory, then direct observation is carried out through the distribution of questionnaires and interviews to internal and external parties related to BAZNAS to get the competency measurement criteria that are most suited to the conditions in the BAZNAS. AHP calculation results are developed in a DSS measurement tools that can be used by BAZNAS Amil to measure their own competency in online application system.

IV. CONCLUSION AND MANAGERIAL IMPLICATION

A. Conclusion

- The type of competency is realized in two competency factors, namely prerequisite and non-prerequisite. Prerequisite competencies include the criterion of educational requirements, the terms of the ability of fiqh of zakat and the islamic world view. Non-prerequisite competencies include the criterion of general competencies, internal competency assessment related to Key Performance Indicators (KPI), ownership of internal training certificates, participation in projects, years of service and internal

work achievement not related to KPI, external competencies (ownership of LSP competency certificates, external work achievement and ownership of non-LSP competency certificates), and Islamic behaviours. The result of AHP showed the standard priority factor of the BAZNAZ employees' competencies was the Islamic behavior criterion with the quality value of 0.341. The second priority was the internal competencies of 0.294, the third priority was the general competencies of 0.290 and the fourth was the external competencies of 0.075.

2. General competencies on DSS used 360° and Islamic behavior used Likert scale. The DSS prototype produced 5 scale interval scores that show the results of each Amil's competency assessment.
3. The DSS was designed by using the PHP programming language and MySQL Database and is applied online on the Internet at www.Amil-online.id. This DSS is not the main base of decision making used in BAZNAS, but rather as a review and a decision-making tool of BAZNAS Management.

B. Managerial Implication

The managerial implications based on the institution's objectives and the research results are:

1. If DSS application –that has been designed and its prototype has been made online– is implemented in BAZNAS, it will require internal follow-up processes, such as socializing to all BAZNAS Amils about how to use it and how its measurement method so that they can operate and perform and input parameters correctly and validly.
2. BAZNAS is expected to map and analyze the result of the competency measurement as the next evaluation material in business process related to the development of BAZNAS Amils' competencies.
3. BAZNAS is expected to identify and update the contents related to competency measurement at certain levels. The difficulty level of the cases and the simulation questions given is based on the position and responsibility level.
4. BAZNAS is expected to follow up the results of the competency measurement with the development system in HRD of BAZNAS or external BAZNAS such as improvement and leadership trainings for Amil who achieve the best competences based on the measurement applied and on the other hand, coaching and counselling program for Amil who has score fairly good or need improvement.

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