Portland State University
Maseeh College of Engineering and Computer Science
Department of Engineering and Technology Management

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On which Hawaiian island should I go on vacation? A multi-criteria decision.

Maud Guegan

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I-ABSTRACT

Hawaii is synonym with dream vacation for a lot of Americans. Nevertheless, even if someone has decided to go to Hawaii, choose an island might still be difficult. Hawaii is an archipelago included 6 inhabited islands. Every island has its own particularities. Depending on the expectation that a tourist can have, one island might be more adequate for him or her.

In this paper, the author wants to select the more suitable island regarding her own expectations. An Hierarchical Decision Model has been created with 4 criteria and 11 sub-criteria. The four most popular islands have been selected for the alternatives.

The experts have different background in order to get a broad opinion. They made pairwise comparison using the HDM tool to evaluate the best island. Literature has been used as a data based for 2 Experts. The literature includes information from official website and scientific paper. The result of this research has shown that Oahu is the best island regarding the criteria chosen.

For future research, we would focused more on the methodology than on the topic studied in this paper. THe HDM Tool is a complex tool and utilisation can be biased by a lot of factors. It would interesting to elaborate a protocol to avoid at utmost those biases.

II-INTRODUCTION

Hawaii is considerate as one of the greatest destination for a lot of Americans. The number of tourists on the islands has progressively increased since 1959, to reach more than 8 millions of visitors per year. (1)

Hawaii is a volcanic archipelago of hundred islands lost in the middle of Pacific ocean. Six islands are inhabited: Big Island, Maui, Oʻahu, Kauai, Molokaʻi, Lānaʻi and Niihau. (2)

The Tourism sector is the primary source of income for Hawaii.(3)

The Characteristics of the hawaiian islands.

If, at the first sight, the islands seem to be almost equivalent, a quick research on Hawaii Archipelago showed that they all have their own characteristics.

Travelers chose Hawaii for several reasons. Hawaii will assure the tourist to get a pleasant weather with nice and warm temperature (4) (5) . Nevertheless Big island receives less hours of sunlight compared to the others. indeed one of the side of the island is names : « rainy windward side ». This characteristic might having an impact on the travelers decision for those who are mostly attracted by the sunlight.

On the other side, Big island is the only inhabited island with an active volcano. Some tourists in Hawaii tend to have different expectations. Big island are usually attracted less of

the " sun and sand" tourist market than do Oahu, Kauai and Maui. (4)

The volcano tourism is an important part for Hawaii tourism economy.. (4) A new type of tourism called « geotourism » is emerging in Big island. The definition of the Geotourism has been given by Newsome, D., & Dowling, R. . Geotourism is a form of natural area tourism that specifically focuses on geology and landscape. It promotes tourism to geo-sites and the conservation of geodiversity and an understanding of earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geo-trails and viewpoints, guided tours, geo-activities and patronage of geo-site visitor centers. (6)

On the opposite side, some tourist would prefer to get access to restaurants, bars or shops… Oahu with Honolulu is heavily developed. (4) Get a direct flight for this island might be easier and cheaper.(7) Find a cheaper hotel room will be more accessible . But you might as well spend more money on purchasing food or doing activities. (8). Staying on big island or Oahu is going to impact your budget differently.

One other important aspect in Hawaii archipelago is the possibility to do aquatic activity like surf or snorkeling. 40 percent of Hawaiian tourist will be engaged in marine recreation. (9) It is an important aspect of Hawaii tourism income.

Hawaii's Marine Life Conservation Districts are renowned to be popular location for the snorkeling amateurs. (10) Big island will have 5 of this locations, Kauai do not have one. (10) Thus, snorkeling aficionados might tends to avoid Kauai for this reason.

choose an islands/a multicriteria decision.

Knowing those differences, we can say that a stay on one specific Hawaiian island could lead to a unique experience.

The offers for Hawaii are multiple and, even if the decision to go to Hawaii archipelago has been taken, a tourist still has to take a decision on which specific island he/she wants to stay.

One island might be more suitable for a certain type of tourist.

The difficult aspect in this decision is that none of the islands had just one specific aspect. Oahu is for instance very developed but you can as well find 19 state parks that will provide a visitor to have access to a preserve environment on different place in the island. Maui only have 9 state parks. (9) The diversity of the landscape might be here less important.

If you want to go to Hawaii, you first need to decide what is more important for you. There is no « YES or NO » decision here. Everything is relative. A criterion could be judged less or more important compare to the others. A criterion might have more impact for one island compare to the other one. The decision for this topic is the result of different component. For this type of Multi-criterion Decision, the Hierarchical Decision Model can be helpful as it helps to classified and weight all the criteria. (12) (13)

The author of this paper has considered herself as a potential tourist for Hawaii. She has imagined a stay of 7 days in Hawaii with her family. She has decided what criteria was important for her and has elaborated an Hierarchical Decision Model to help her to choose one island.

After the calculation, the Oahu island is the island with the higher points. Thus the author

will go on this island for her vacation.

For this research, 6 experts from different background has been used. 2 experts are native Hawaiian. 2 are experimented tourists who went to Hawaii several time. 2 are the potential future tourists, they have never been to Hawaii before.

III-METHODOLOGY

The hierarchical decision Model.

To make the decision on this topic: "*On which Hawaiian island should I go on a break?",* you need to consider several criteria at the same time. The Hierarchical Decision Model (HDM) is a tool that can help for this type of multi –criteria decision, (12) It has been developed by By Saaty from the analytic Hierarchical Process (AHP). (13)

The problem (the topic) is decomposed into hierarchies. Criteria relative to the topics are created. Those criteria are again decomposed to obtain sub-criteria. The decomposition can continue until all the essential characteristic for the topics are defined.

The pairwise comparison method is then applied.

Experts compare two criteria at a time and their relationship to each other. (12)

Each criterion is getting more or less weight in the HDM

The result of the all the expert judgment quantification are gathered in one calculation to find the best alternative.

Several steps.

1- step 1:Reading literature

The author red some literature to get a better idea of Hawaii characteristics.

The author was able to distinct some specific characteristic for Hawaii archipelago, a list of criteria and subcriteria has been define

2- Step 2: creation of the HDM

The author has considered 4 criteria and 10 sub-criteria regarding her expectations as a tourist in Hawaii. 4 island has been defined for the alternatives.

There is 4 level on the HDM

Figure 1: THE HDM Model with levels

the first level of the HDM correspond at the decision that needs to be made.

The second level of HDM correspond to the criteria.

Table 1: Second level HDM Model

REF.	NAME CRITERIA	DEFINITION
C1	Cost	This criterion includes all the monetary aspect relative to a touristic trip.
C2	Weather	This criteria is related to the type of weather you want to have during your stay
C3	environment	Environment is here synonymous with the type of landscapes you will have on the island. (ex: urban landscape,
C4	activities	This criteria evokes the activities that you can do during a tourist trip.

The third level of the HDM correspond to the subcriteria.

Table 2: Third level of the HDM Model.

CRITERIA	REF.	SUB-CRITERIA	DEFINITION
Cost	SC1	Good deal airfare	you pay less for the your plane ticket
	SC2	Good deal price hotel	You will pay less for your hotel
	SC3	Less dollars spent per day	You will pay less for the foods, activities, transportation… Everything that is relative to the monetary aspect and that is not the plane ticket and the hotel cost.
Weather	SC4	Sunlight	The percentage of sunshine hour pet day.
	SC5	Nice temperature	Warm temperature.
Environment	SC6	Natural environment	This sub-criteria refers to the possibility to get access to the nature like forest or beaches...
	SC7	Tourists accommodation	This sub-criteria refers to the possibility to go to bars, shops or restaurants.
Activities	SC8	Volcanoes discovery	This sub-criteria refers to the possibility to get access to a volcano and get information about volcanoes in general.
	SC9	Snorkeling	This sub-criteria refers to the possibility to snorkeling. It includes the possibility to do it and the quality of the snorkeling (preserved spots)

	SC10	Sunbathing	This sub-criteria refers to the possibility to take a sunbath. It is possible to relax at the sun.

Those criteria and sub-criteria are specific to the author. They would have been different for someone else.

On the third level of the HDM, we find the alternatives.

It has been decided to choose 4 islands on the 6 inhabited islands. Those 4 islands receive the most important number of tourists.

The fourth level of the HDM

Table 3: Number of ARRIVAL BY AIR per island in 2015 (8)

ISLAND	**Number of visitors** (8)	**RANK**
O'AHU	5,339,912	1
MAUI	2,579,311	2
BIG ISLAND	1,514,973	3
KAUAI	1,173,752	4
MOLOKA'I	64,767	5
LĀNA'I	58,390	6

The islands selected are OAHU, MAUI, BIG ISLAND AND KAUAI.

When the HDM has been created, it had been given to the experts.

3- Step 3: the experts.

6 experts had given their judgment.

The expert were using the HDM tool created by the ETM department of PSU.

One expert (expert 1) did the survey online via a link sent by the author. Unfortunately, and despite the written explanation given to this expert, the results was not conclusive. The inconsistence were high (0,06) and the a lot of comparison had not been made. (An equal amount of points were distributed on several occasion.) Thus, it had been decided to review this expert to be sure that he has understood the HDM tool and the meaning of each criterion.

The expert reveals that he hasn't understood the meaning of all the sub-criteria and did the comparison very quickly.

The results from the second attempt were different. The inconsistency felt from 0,06 to 0,01.

This experience allows the author to identified some difficult aspects for the experts when they had to use the HDM tool.

The first difficulty is related to meaning of the criteria. The definition of the criteria can be misunderstood and the explanation given for each node by the tool is not easy to find. Indeed the mouse cursor needs to stay more than one second on the node before getting a description of the criteria.

The second point is that it can be counterintuitive to allocate more points to an island when you want to express the idea to spend less money. Several times the experts were lost and

the author had to repeat this sentence: “You give more point to the island where you think you can think you will have a better deal”.

The survey was each time done in a room with only the expert and the author. The computer was already prepared to complete the model. The experts could spend all the time to do the procedure.

They were first taught how to use the tool. They was shown how to use the slider to allocate more points on one alternative. Each box, number of points and the “multiplication box” (it is 3 times more important…) were shown and their significance were explained.

During the process, the author tried to speak the less possible and in a more neutral way in order to prevent any psychological biais (anchor effect…). The expert 5 tries a lot to have a confirmation about her judgement. To avoid any biais on her results, a simple sentence were said: “ It is your personal jugdement.”

The authors were just here to assure the good comprehension of the criteria and a good comprehension of the tool.

During the process, expert 1, expert 3, Expert 5 and Expert 6 have mentioned that when they were not able to make a comparison, they will give the same amount of points for the both alternatives.

4- Step 4 : the calculation.

When all the experts had given their point of view, the HDM tool was able to give a conclusion

A calculation based upon the weight of all the Experts were done using this formula:

$$T = \sum_{i=1}^{i} Ci \sum_{j=1}^{j} Sj \sum_{k=1}^{k} Ak \quad (14)$$

where,

T= aggregate score of the decision

Ci=Relative contribution of criteria to the final decision

Si= Relative contribution of the sub-criteria to the criteria.

i= Number of criteria on level 2

j= Number of sub-criteria on level 3

k= Number of alternatives (Island).

table 4: Result of the calculations for each Island.

Island	Oahu	Maui	Kauai	Big Island
Mean	0,31	0,25	0,21	0,23

Oahu, according this calculation from the HDM tool and the criteria given by the author,

Oahu is the most suitable island to go on vacation for the author.

IV-DATA AND DATA SOURCE(S)

the experts

In this research, the author has used 6 experts. They are all from different backgrounds which allow the author to get a broader opinion and a better expertise for the decision.

3 types of experts of experts has been used in this research.

The first group of expert (expert 1 and 2) is a group of native Hawaiian. They only used their own knowledge to make their comparisons.

Expert panel 1: Native Hawaiian.

Expert 1 was born in Oahu Island and has spent 18 years there.

Expert 2 was born in Maui and has spent 25 years there.

This group of experts did not use the literature to make their comparisons. They based their judgment on their own experience as former habitants of Hawaii.

Expert Panel 2: tourists.

Expert 5 is a woman. She knows Hawaii has a tourist. This expert has visited 3 islands on three different occasions, each time in December with her family.

The islands visited were: OAHU, MAUI, KAUAI

Expert 6 is a men. He knows Hawaii has a tourist. The expert is married to a native Hawaiian and get the chance to visit all the islands at several times. Nevertheless he has spent more time on Kauai island since his wife's family is from there.

Expert 5 and expert 6 did not use the literature to make their comparison but used their own knowledge regarding their experience as a tourist.

Expert panel 3: the participants to the trip

Expert 4 is a woman . Expert 3 is a man. They are the the participant to this future trip to Hawaii. They have never been to Hawaii before and they based their judgment for the level 4 of the HDM thanks to the data from the literature.

Expert 4 had made all the literature research. She had extracted and classified all the important information from the literature regarding the criteria selected.

She had summarized those information in a table. Thanks to this table, the expert 3 was able to make his own comparison on the level 4 of the HDM (comparison between the islands regarding the sub-criteria.)

Table 5: summarize experts characteristics

Name of the experts	Characteristics	Sources of data
Expert 1	Native from Hawaii	Personal knowledge Personal experience
Expert 2	Native from Hawaii	Personal knowledge Personal experience

Expert 5	Went several time as a tourist in Hawaii	Personal knowledge Personal experience
Expert 6	Went several time as a tourist in Hawaii	Personal knowledge Personal experience
Expert 4	Future tourist	Literature Personal experience
Expert 3	Future tourist	Literature Personal experience

Even if the experts are from different background they have two common points.

The first point is that they all know the Author of this paper (expert 4) and they all live in Portland, Oregon USA.

The source of datas

The comparisons at the level 2 and 3 of the HDM model (criteria and subcriteria) refer to the personal experience and judgment of the experts. The comparison is here judgmental. In order to make those comparisons, they needed to think about your own expectations for a trip as a tourist. What was more important for them. No literature data was needed here.

At the Last level (level 4) the experts had to weigh the alternatives regarding the sub-criteria. The expert group 1 and the experts panel 2 were not using datas from the literature but again their own knowledge draw from their Hawaiian experiences. The experts panel 3 was not able to proceed that way since they had never been to Hawaii and only had some poor

informations about the archipelago.

For each sub-criteria, the author (expert 4) tried to get the more relevant information.

He gathered those information in a table. It is the same table that have been given to the expert

Data From literature: (for expert 3 and 4)

SC1: Get a better deal on the air fare:

Researches have proved that a competitive route forced the aerian company to lower their air fare price. The price discrimination become more important and the possibility to get a better price for a plane ticket on those aerian routes is more important. (7)

Knowing that information, the author has found the number of airlines serving each island.

Table 6- number of airline for Each island. (15)

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Name of the primary airport of the island	Daniel K. Inouye International/ Honolulu airport	Kahului airport	Lihue Airport	Kona International Airport at Keahole
Number of airline serving the airports.	25	11	9	12

Expert 4 and 3 came to the conclusion that it was easier to get a better deal for Oahu

compare to the other islands.

If we are considering those number the probability to get a good deal on the plane ticket is lower for Kauai compare to all the others islands.

The difference between Big island and Maui is really not important.

The difference between the probability to get a better deal is probably negligible.

The experts 4 and 3 has used , after this first analysis, their own judgement to allocate the points between the islands.

SC2: get a better deal on the price hotel.

To compare the price of the hotel for each island, , the average price for a room per night had been used. Those number are extracts from the 2015 Annual visitors research reports This report was produced by the Tourism Research staff of the Hawai'i Tourism Authority (HTA).

Table 7- average price hotel room

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Average Price hotel room (4)	$219.53	$316.26	$243	$230.26
Price for 7 days	$1536	$2213.82	$1701	$1611.82

Expert 4 and 3 has decided to use a proportionality rules to compare the island.

Each island is compared with the other island using this calculation:

Average price hotel for one night Island 1/ Average price hotel for one night island 2

Ex: Maui compare to Oahu.

316.26/219.53= 1, 44

Maui is 1,44 times more expensive than Oahu.

Oahu is considerated as 1,44 more important than Maui for this criteria.

Results:

Kauai 1.11 times more expensive than Oahu

Big island est 1.04 times more expensive than Oahu

Maui is 1.30 more expensive than Kauai

Maui is 1.37 more expensive than Big island

Kauai is 1,06 more expensive than Big Island.

The expert 4 has decided to take one more criteria in order to make her decision. For this expert, a reference point has been included in the comparison.

If the price of the stay at the hotel exceed 2000 dollars for 7 days. The island will lose 20 more points in addition to the one lost with the previous calculation.

Maui is the only island with a price that exceed 2000 dollars per a week.

SC 3: Dollars per day.

To compare the price of the hotel for each island, the average of daily spending per visitor on each island has been used Those number are extracted from the 2015 Annual visitors research reports produced by the Tourism Research staff of the Hawai‘i Tourism Authority (HTA).

The daily spending includes:

- Shopping cost
- Food and beverage cost
- Entertainment cost
- Transportation cost

table 8- 2015 Visitor Personal Daily Spending

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Dollars per a day (4)	$114	$102	$96	$79

Expert 4 and 3 has decided to use a proportionality rules to compare the island.

Each island is compared with the other island using this calculation.

Average daily spending Island 1/ Average daily spending island 2

Ex: Maui compare to Oahu.

114/102= 1,12

results:

Oahu is 1,12 more expensive than Maui.

Oahu 1.12 more important than Maui

Oahu 1.18 more expensive that Kauai

Oahu 1.44 more expensive than Big island

Maui 1.06 more expensive than Kauai

Mauia is 1.29 more expensive that big island

Kauai is 1.22 more expensive than big island.

SC 4: Hours of sunlight.

To make a comparison between the islands, the author has used on the climate data from the current result website that used the data from the National Climatic Data Center to make those conclusion. (16)

table 9- Percent sunshine yearly for each island

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Percent sunshine yearly	71 per cent	67 percent	59 per cent	41 per cent

After this first analysis, expert 4 and 3 has allocated the points in accordance with their own references and personal perception.

SC 5:Nice temperature.

To make a comparison between the islands, the author has used the data extract from "Hawaii facts and figures from the dept of business, economic development and tourism.

table 10- average temperature on each island

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Temperature (5)	Average temperatures range from 71° to 84° F.	In Kahului average temperatures range from 67°-84° F. The chilly slopes of Haleakala Crater have a temperature range of 14°-73° F.	Average tempera- tures at Lihue Air- port range from 70° to 81°F.	Average daily temperatures: Hilo (73.9° F.); Kailua-Kona (73.1° F.) Mauna Kea summit temperatures range from 18° to 85° F.

Expert 4 and 3 has concluded that the temperatures was nice on each island. The cold

temperature indicated here are the temperature taken at the top of the upper points of the island. The experts as tourists will not spend a lot of time on those spots. They both have decided to allocate the same amount of points on each island.

Nevertheless, they have given less points to Big Island because Big Island receives less hours of sunlight. the temperature felt might be less nice.

SC 6: Natural Environment.

To make a comparison between the islands, the number of State Park on each island had been take in consideration.

A state park is a guaranty to have a preserved natural space. For the experts has considered that the most state parks you had on the island, the better opportunity to have access to the nature you had.

table 11- Number of state Parks on each island

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Number of states Park per island. (11)	19	8	9	14

Expert 4 and 3 has decided to use a proportionality rules to compare the island using this calculation:

Number state Parks Island 1/ Number state Parks island 2

Ex: Maui compare to Oahu.

19/8= 2,38

For this criteria Oahu is 2,38 times more important than Oahu.

Results:

Oahu is 2,11 times more important than Kauia

Oahu is 1,36 times more important than Big Island

Kauai is 1,13 times more important than Maui.

Big Island is 1,75 times more important than Maui.

Big Island is 1,66 times more important than Kauai.

SC 7: Tourism accommodation

table 12- Number of tourists on each island

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Tourism number per year on each island.(4)	5,339,912	2,579,311	1,173,752	1,514,973

In order to make a comparison between the islands for the "tourism accommodation" sub-criteria, the experts has decided to take in consideration the number of visitors on each island. They assumed that the number of accommodations (shops, restaurant, bars…) would

be proportionally linked to the number of tourist. from the 2015 Annual visitors research reports produced by the Tourism Research staff of the Hawai'i Tourism Authority (HTA), they find the number of visitors on each island per year and they used a proportional calculation to make the comparisons.

They used this calculation:

Number of tourist island 1/ Number of tourists island 2

Ex: Oahu compared to Maui

5,339,912 /2,579,311 = 2,07

Oahu is 2,07 times more important than Maui for this sub-criteria.

Results

Oahu receives 2,07 more visitors than Mahui

Oahu receives i4,5 more visitors than Kauai

Oahu receives 3,5 more visitors than big island

Maui receives 2,20 more visitors than Kauai

Mauia receives 1,7 more visitors than big island

Big island receives 1,3 more visitors than Kauai

SC 8: volcanoes discovery

For this sub-criteria, the expert 4 And 3 has taken in consideration that Big island was the

only island with an active volcano. It Is on this island that you can find the Hawaii National Park. The experts has considered that this island is the best place to learn more about the volcanoes.

They both had accorded more points for this island. The other island had received the same amount of Points when they were compared together. (50 points)

SC 9: snorkeling

To make a comparison between the islands, the number of HAWAIʻI MARINE LIFE CONSERVATION DISTRICTS Had been taken in consideration

Those districts are a guaranty to have access to an exceptional snorkeling spots. It is quality and the richness of the reefs that it is evaluated here.

table 13- Number of marine life conservation districts on each island

Name of the island	OAHU	MAUI	KAUAI	BIG ISLAND
Number of districts (10)	3	3	-	5

Expert 4 and 3 has decided to use a proportionality rules to compare the island.

Number districts Island 1/ Number districts island 2

Ex: Big Island compared to Oahu.

5/3= 1, 67

Big island is 1,67 more important or this sub-criteria.

Results:

Oahu and Maui are equal.

Oahu is 3 times more important than Kauai

Maui is 3 times more important than Kauai

Big island is 5 times more important than Kauai.

Big island is 1,67 more important than Oahu.

SC 10: sunbathing.

Big Island receives less of the “sun and sand” tourist market than do Oahu, Kauai and Maui. (4) the experts had assumed that the beaches on big Island were less attractive than the Beaches of the other islands. Moreover, the weather is less appropriate on Big Island as this island receives less sunlight hours than the others.

Experts 3 and 4 has decided to allocate less point for Big Island. The other island are considered as equal and received the same amount of points when they were compared together.

V-ANALYSIS AND KEY FINDINGS

Disagreement and inconsistency

Oahu is the island with the higher score with this model of HDM. Regarding the criteria chosen by the author, Oahu is the most adequate island to go on vacation.

The disagreement between the experts is 0,035. It is considerate as acceptable.

There is no inconsistency for experts 3 and 4 and a very low inconsistency for the rest of the expert (less than 0,02 or equal)

A difference between the experts.

If we look more in details the result, we can see that Oahu get the higher score with the experts 1, 2 ,3 and 4.

The result is different if we only take in consideration the expert 5 and 6 (the group panel 2: Tourists)

Moreover we can notice that the results for this group are more compact than the other.

One interpretation could be the fact that as a tourist it can harder to see the shades between the islands.

The results from the expert group 1 (Native Hawaiian) are strongly differentiated with a 0,21 points between the higher and the lower score for expert 1 and 0,12 for the Expert 2.

Analysis of the most heavier criteria in the HDM.

Weather/ hours of sunshine.

On first level we can notice that the criteria “weather” is the most heavier with 0.33. This criteria get the higher priority in this model.

Under this criteria, the sub-criteria “Hours of sunshine” had received a lot of points by the experts with a result for the average is 0.58. Oahu is the island that received the best evaluation for this sub-criteria. One explanation a high score on this citeria and Sub-criteria might be the fact that tourist usually expect to get a nice weather on their trip. Furthermore, the experts all live In Portland in Oregon. The weather in Portland is usually grey and wet. This paper has been made after a terrible winter. It would be interesting to see if the weigh would be the same after a nice winter.

Natural environment

The sub-criteria “natural environment” gets a lot of points from the experts as it is evaluated as 0.64. Kauai Is the island with the higher score on the sub-criteria. The criteria linked to this sub criteria is the “environment”. Weighted as 0.26. This criteria is important when you compare it with the second sub-criteria (tourism accommodations) Tourism accommodations only received 0,36. The expert panel clearly identified a preference here. The idea of a natural environment is very subjective. It would have been interesting to define a little bit this concept to get more accurate results. Indeed, as this criteria is importaant, the general result are going to be impacted.

good deal price hotel

The last subcriteria with a high score is the “good deal price hotel” at 0,45 under the criteria cost at 0,26.

Oahu is the island with the best score (0,37). This preference with 2 different ways.

The first one is they are not concerned about the hotel and do not care to have a cheap hotel. the saving money can be used for other thing that are considered as more important for a vacation.

the second aspect is that the experts wants to find a very high standard hotel. They might find. They need to find a good deal to get access to this kind of hotel.

VI-FUTURE RESEARCH

During this studies, some issues regarding the utilisation of The HDM tool.

The author had to go over one expert who was supposed make his comparisons alone via a link sent by email.

It appears that the comprehension of the tool was not so easy. The author had to re explain verbally what to do and show how to use it. By doing this, a lot of psychological biases like the anchoring effect could have impacted the experts judgements . With the 6 differents experts from this study, we have to describe the tool. We did our best to deliver the same message but sometimes, some experts needed more explanation. We do not know if our

intervention has caused a change in their answers.

It would be interesting to elaborate a real protocol for the passation as it is already done with some psychological test. the oral direction could be written upfront. The words used could be chosen carefully to avoid any biases. Certains place as a white room could be prefered to use the HDM tool. A lot of points could be identified.

A second aspect could be developed with the HDM tool.

The experts tend to give less accurate answers as the number of comparison increases.

The focusing ability of human are not infinite and give a judgment require a mental effort.

it would be interesting to see how many comparison it is possible to make before getting less performant. If it is proved that after a certains number of judgement, the experts are not capable of doing a good judgment, we could imagine a way to make a break after a certain number of comparisons by doing a different activity. Again, that could be a part of the HDM tool protocol.

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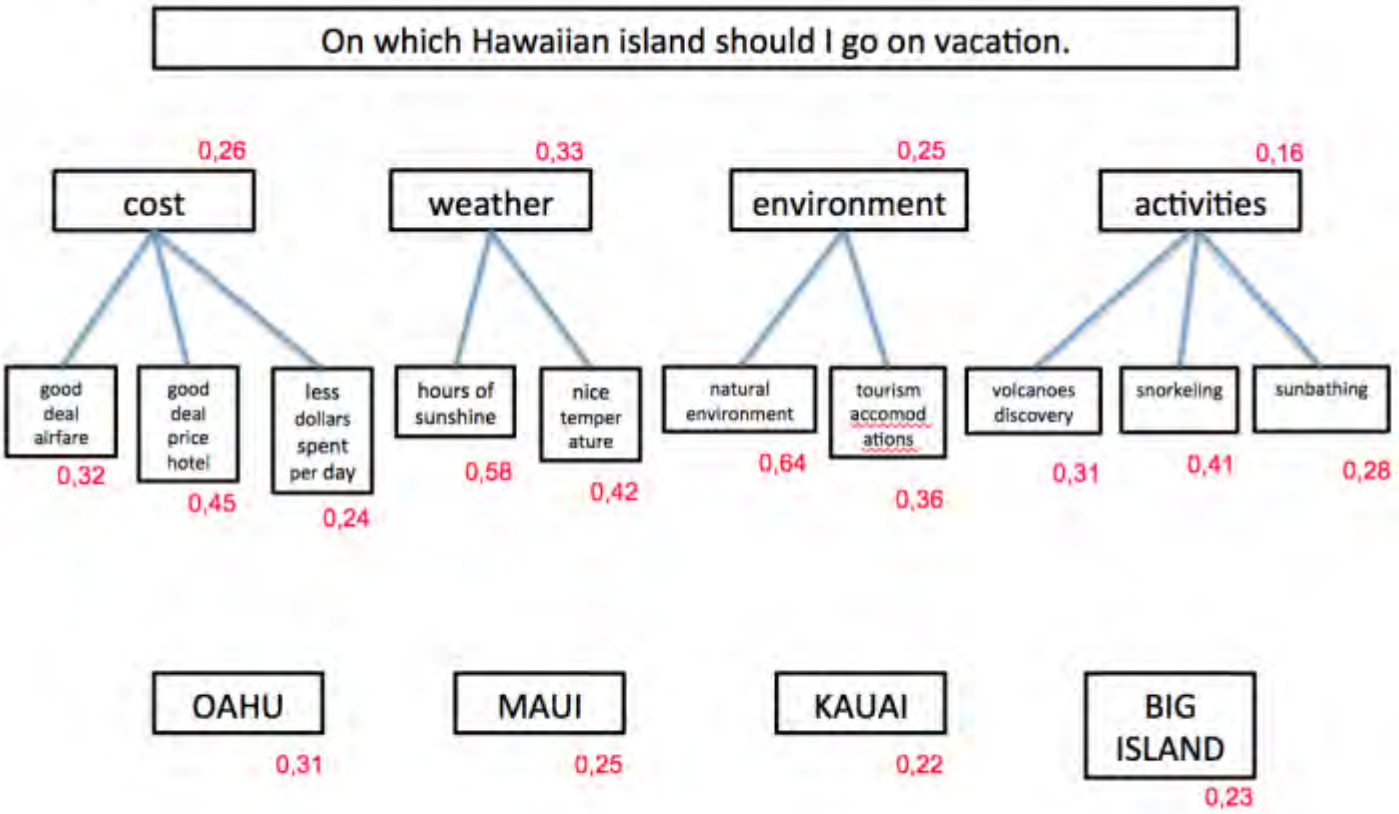
Appendix A: Mean weight criteria

Appendix A



Appendix B : Inconsistency and disagreement among the experts.

which Hawaiian island I should choose to go on vacation?					
	Oahu	Maui	Kauai	Big Island	Inconsistency
expert 1	0,38	0,25	0,17	0,21	0,01
expert 2	0,3	0,27	0,25	0,18	0,02
expert 3	0,35	0,23	0,2	0,22	0
expert 4	0,34	0,22	0,19	0,25	0
expert 5	0,25	0,28	0,22	0,26	0,02
expert 6	0,23	0,25	0,25	0,26	0,01
Mean	0,31	0,25	0,21	0,23	
Disagreement					0,035