

**IMPLEMENTATION OF CYBER EXTENSION OF FISHERIES PRODUCT MARKETING****Sukmawati Abdullah****Email :sukma.wati1139@yahoo.co.id****Faculty of Agricultural, Agribusiness Department, Halu Oleo University, Kendari, Southeast Sulawesi**

**Abstract:** Implementation of cyber extension in fisherwomen empowerment is a strategy to optimize the modern marketing of fish product through information and technology (IT) utilization. The purposes of this study are to (1) analyze the behavior of fisherwomen in utilizing information and technology (IT) of cyber extension in marketing fish abon, and (2) formulate strategy of fisherwomen empowerment in the marketing of fish *abon* products through cyber extension implementation. Data obtained were analyzed by using descriptive method. The second purpose of this study was achieved by using SWOT analysis. Data was collected through focus group discussion (FGD) to formulate alternative in development of local planning capacity including of purpose alternative and policy alternative. The results of this research shows that (1) fisherwomen who utilizing information and technology (IT) through mobile phone usage are knowledgeable and skilful but have low skill in computer usage, yet eager to learn in utilizing the technology and (2) strategy in fisherwomen empowerment in expanding their fish product by: (a) improving knowledge and skill of KUB (Fisherman Business Group) members in processing of *tuna abon* products because the products are known and favored by consumers since it has distinctive taste, (b) create the marketing cooperation of *tuna abon* with related agencies and it is also done by online marketing.

**Key words:** Cyber Extension, Fisherwomen Empowerment, Marketing, Fish *Abon*.

**INTRODUCTION**

Fish is one of sources of animal protein consumed most of people, easily found, and the price is low. Nevertheless, fish undergoes fast of spoilage process. Fish with easy spoiled needs certain act to keep its quality and nutrition. Good fish quality can be seen from the freshness level with features of tough meat, bright eye, strong and bright scales, strong fin, bright body color, red gills, strong abdomen wall, and fresh smell.

The analysis results of (Balai Pusat Statistik. 2008), shows that rate production of sea fishery in Kendari consist of: skipjack fish, tuna fish, *laying* fish, *tembang* fish, mackerel fish, *kerapu* fish, *ekor kuning* fish, and squid amount to 33.157,14 tons. Production of land fishery consists of fishponds (*Windu* lobster, milkfish, and crab) amount to 68.75 tons with Rp. 982.896, 45. Production of fishponds like *mas* fish, *nila* fish amount to 6, 68 tons with Rp. 15.163.85. Next, fickle fish is produced amount to 14.740,56 tons. While, Abeli Sub-district of Kendari produces it

both sea and land fisheries amount 4, 12 tons with Rp. 86.782,73. It shows that Abeli is potential area to develop industry of sea fish types.

Now days, one of unhandled problems by development planning is women role in farming sector. Women participation in farming sector has big role, nevertheless the role of women in farming development system, particularly in rural are is very low. The study (Zein A, 2006), showed that women fishermen on the coast have a significant role in supporting the household economy fishermen, which is able to contribute revenue of 7, 23% of total household income. as well as research results (B.Vijay and B.Natarajan, 2013) , that fisher women has performance a qualitative change that has taken place in their relationship to production and marketing as a result of capitalist development. While research [Ayeisha Brinson, Min-Yang Lee, Barbara Rountree. 2011], Community Supported Fishery (CSF) Programs are a new, innovative form of direct marketing in which consumers provide upfront payments to fishermen in exchange for weekly seafood deliveries during a season. These programs, modeled after Community Supported Agriculture, provide benefits for fishermen, consumers, and the local community.

Government efforts to tackle poverty in the marine and fisheries sector can not be separated from the need to include women in policy development in the sector, from planning to implementation. Involving women are equal to men has great significance for improving the economy of coastal communities. This is not only because of the strategic role of women in the household, but also because women act as a buffer to cover the needs of the family fishing income uncertainty and insufficient (Kusnadi, 2006).

This phenomenon is influenced by the low human resource quality as the result of the low fisherwomen's knowledge and skill, the low information dissemination of fish process technology, and low market information, and thus sea fish product potential has not give yet a significant contribution towards societies income. This is caused by product economy value such as fish and lobster sticks, making of fish *bakso* with various forms like making of sate broth, *bakso* broth, fish *abon*, presto *bandeng*, *pepes bandeng*, and *bandeng* brains are very low.

Supporting of electronic media like television and radio are still not suitable of time and place. Extension material distribution through electronic media like television and radio needs not only high cost but also the broadcasting time is very limited and usually can not be reached by farmers in rural areas. So, it needs modification of arrangement and agricultural extension information dissemination thorough internet networks called as cyber extension.

The development of cyber extension generally aims at developing agricultural information system based on united web, and integrated web, and useful for disseminator, extension institution, and agribusiness actors and other sectors. Cyber extension can provide information needed by disseminator, main actors, entrepreneur, and farmers based on location specific need, so it fastens improving of agricultural extension material for disseminator and workers. The development of cyber extension also can fastens agricultural information distribution from centre government to local, and increase farmer access in getting needed information.

Cyber extension is one of new media in agricultural innovation communication that can be used to unify research, development, and investigation institution with innovation disseminator, educator, farmer, other stakeholder groups with different needs and information, so it can work

together and complete one another [Sumardjo, Lukman M Baga, and Retno SH Mulyandari. 2010, Maureen. 2009].

By Competed Bequest Research Program will create good relationship between university (UHO) and city government (Kendari), and society in investigating natural resource and human resource potentials in the use of information technology in accessing market or increase product quality through cyber extension to empower fisherwomen in distributing fish *abon* product.

This study has specific objectives, namely:

1. Use cyber extension as online or internet media to inform the way of fish *abon* process technology such as packaging, label making, production permission, product marketing, promotion act, and marketing technique.
2. Analyze fisherwomen's behavior in the use of information technology and analyze the use of cyber extension by fisherwomen in fish *abon* product marketing.
3. Formulate strategy of fisherwomen empowerment in fish *abon* product marketing through cyber extension.

## RESEARCH METHODS

### Location and Time of Study

Study was conducted in Abel Sub-district of Kendari city that can access regional agricultural information system. This are is central production of fish *abon* and has access towards cyber extension implementation (computer and internet). Marketing target is in Kendari city by using cyber extension marketing. This study was conducted for 10 months.

### Population and Sample

It is a survey study conducted on population, fisherwomen who have fish *abon* endeavor and access to information technology (hand phone or mobile phone). It is based on the study objective to find out the use of cyber extension in supporting fisherwomen empowerment of fish *abon* product marketing. As new communication media, cyber extension integrates information technology in the development of agricultural information system. Therefore, the criteria of respondents in this study are as follow:

1. Fisherwomen who has fish *abon* endeavor
2. Fisherwomen have opportunity to use information technology media to access technology based information system from the around environment.
3. Fisherwomen who use information technology to support product endeavor of fish *abon*.

Population in this study is all fisherwomen who has fish *abon* endeavor in Abeli Sub-district and wives from poor family who do not have enough income to help their husband as fishermen. It focuses on fishermen's wives at villages of Pudai, Lapulu, Poasia, Sambuli, and Tondonngeu. The numbers for each group are ten persons.

## Kinds and Sources of Data

Collected data in this study consists of primary and secondary data.

1. Primary data is collected data directly from chosen fisherwomen group that do fish *abon* production endeavor and can be reached by cyber extension implementation.
2. Secondary data is data which are collected through related institution and relevant literature in this study.

The collecting of primary data is done by several ways: a) structured survey using questionnaire, data collection through questionnaire answering by respondent under guide the researcher/facilitator in the field, b) structured interview, the researcher interviews the respondent based on the questionnaire, c) Focus Group Discussion in fisherwomen group level, and d) field direct interview.

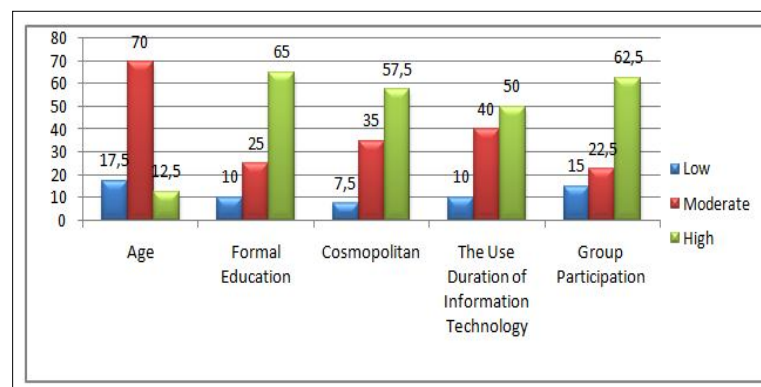
## Data analysis

1. Collected data were analyzed by using descriptive method. According Whitney (1960) in (Nazir, M. 2003), descriptive method is a fact finding method with suitable interpretation. This method describes the situation or event, so it can accumulate base data. Technique of data collection in descriptive method obtained through schedule questionnaire or interview guide (Nazir, M. 2003).
2. To formulate strategy of fisherwomen empowerment in the marketing of fish *abon* product through implementation of cyber extension used SWOT analysis (Strength, Weakness, Opportunity, and Threat).

## RESULT AND DISCUSSION

### Characteristics of Fisherwomen

Characteristics of fisherwomen present human resource condition of fisherwomen that can influence ways of thinking and act in taking decision related to their endeavor, particularly for fisherwomen participation. Fisherwomen resources cover age, educational level, cosmopolitan, information technology, the use duration of information technology, and group participation, and they can be seen on Fig 1 below:



**Fig 1. Characteristics of Fisherwomen toward Implementation of Cyber Extension**

All respondents in study location have productive age. It can contribute to the performance of fish *abon* production at Pudai village since productive age group is productive workers who tend to continuously develop their endeavor of fish *abon* production. Educational level of most fish *abon* worker groups has finished their Senior High School, namely 25 persons or 65%. The different educational level should not influence their works in fish *abon* production, but the difference of fisherwomen with high and low educational levels are ways of thinking and information receiving ability like in internet training of blog making way.

Cosmopolitan in this study refers to how the fisherwomen do cooperation to others or other study institution out of social and environment system, and fisherwomen's behavior in the use of media. Fisherwomen with high cosmopolitan in study location (23 persons or 57.5%) is the result of fisherwomen who actively looking for information out of social system through either extension activity by agricultural investigator in the field or from printout and electronic media. Since the supporting of family members and enough material, so the knowledge, behavior, and skill of fisherwomen increase. In line to opinion of (Mardikanto, T. 1993) that for society who are more relative cosmopolitan, innovation adaption can run well. But, for societies who are relative closed and rural, innovation adaption will not run well.

Fisherwomen group is formed as communication coordinating institution among fisherwomen, and between fisherwomen and technology related institution. The study result shows that active participation dominantly is done by respondents in group form who contribute in their group activities in processing hygienic fish *abon*.

### Fisherwomen's Perception towards Cyber Extension Characteristics

Someone's behavior is the function of his/her ways of thinking. Therefore, to change someone's behavior, we should firstly change his/her perception. In perception process, there three main components, namely selection, interpretation, and perception (Sobur A. 2003). According (Rakhmat, Jalaluddin. 2000) that perception is experience of object, event, and any relation by giving the conclusion and interpretation of it.

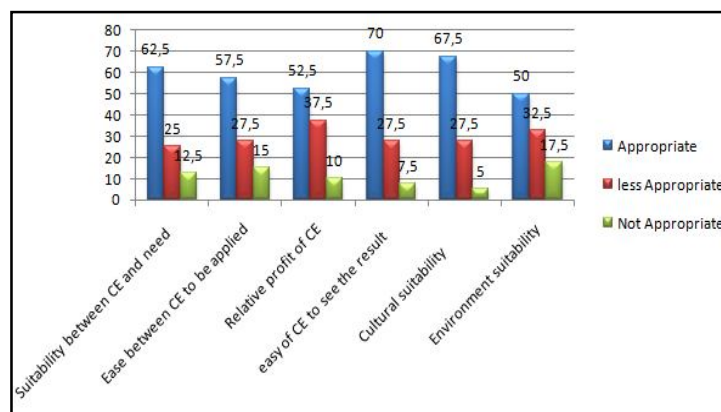


Fig 2. Fisherwomen's Perception towards Cyber Extension Characteristics

The study result shows that fisherwomen's perception towards characteristics of cyber extension (Fig 2) is generally good, that by using information technology in communication (cyber extension) is based on the needs. Information technology, mainly mobile phone has become main media in communication to support the performance of fish *abon* product and its marketing.

### Fisherwomen's Behavior in the Use of Cyber Extension

Aspects of fisherwomen's behavior towards the use of information technology of cyber extension that analyzed in this study cover knowledge, behavior, and skill of fisherwomen in the marketing of fish *abon* product. Generally, fisherwomen at Pudai village still have low knowledge of technology using. It can be seen from their difficulty level in using the computer. It is the result of most of them is only graduator from Junior High School. However, it is considered from behavior aspect, most of them has positive attitude to information technology, mainly the use of internet and website making process. It can be seen from their enthusiasm in joining to internet training of blog making.

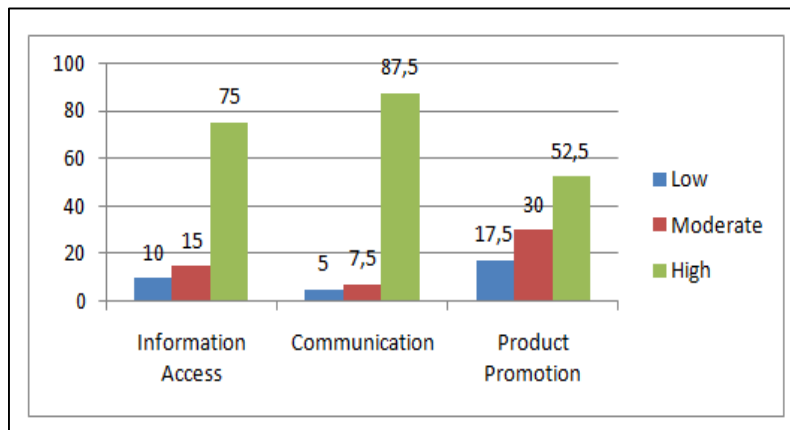
**Table 1. Fisherwomen's Behavior in the Use of Cyber Extension**

Number	Fisherwomen's Behavior	Amount (person)	Percentage (%)	Mean
1.	<b>Knowledge of CE</b>			
	Low	3	7.50	37.22
	Moderate	9	22.50	
High	28	70.00		
2.	<b>Attitude to CE</b>			
	Disagree	5	12.50	36.85
	Less Agree	8	20.00	
Agree	27	67.50		
3.	<b>Skill to CE</b>			
	Not competent	2	5.00	32.25
	Less competent	7	17.5	
Competent	31	77.5		

The table above shows that although the fisherwomen group has low educational level, they are enthusiasm to know the blog making process and engage to develop their local potential and their self potential, namely through processing of fish in their place as fish *abon* with distinctive taste and hygienic, and good quality to be sold.

### The Use Level of Cyber Extension

Dominant information technology used by Fisherwomen to support their endeavor is mobile phone. The study result as fig 3. above shows that Fisherwomen's Behavior toward the use of technology information is high. This proves that Fisherwomen can use information technology and communicate to any people, and they use it to promote and market their fish *abon* product.



**Fig 3. Fisherwomen's Behavior toward the Use Level of Cyber Extension**

### Strategy of Fisherwomen Empowerment in the Marketing of Fish *Abon* Product through Cyber Extension Implementation

#### 1. Input Phase

##### a. IFE Matrix Analysis

IFE matrix used to know how the significant effect of internal factors on Together Endeavor Group (KUB) (Fisherman Busines Group ) toward *Tuna abon* product. IFE matrix describes internal condition of KUB on *tuna abon* product consisting of strength and weakness which are counted based on branch and heavy.

Number	Evaluation Factor Internal	Heavy	Branch	Score
<b>Strength</b>				
1.	KUB (Fisherman Busines Group) members of <i>tuna abon</i> product have knowledge and skill in making <i>tuna abon</i> products	0.16	4	0.64
2.	It is nearly to the source of fishery result manufacture ( <i>tuna</i> )	0.09	2	0.18
3.	Production result, mainly <i>tuna abon</i> product is known and favored by consumer since it has distinctive taste. It can be proven by the amount of consumers.	0.06	3	0.18
4.	It has production place	0.03	2	0.06
5.	It has active members in production process	0.09	1	0.09
6.	It is known by local government, Kendari city or other related institution.	0.06	3	0.18
<b>Amount</b>		<b>0.55</b>		<b>1.33</b>
Number	Evaluation Factor Internal	Heavy	Branch	Score
<b>Weakness</b>				
1.	Member's awareness is low. It can be seen the attendance of members for most meeting is low.	0.06	1	0.06
2.	Place of <i>tuna</i> stocks is relatively small, so it can not provide fish for <i>abon</i> routinely.	0.06	2	0.12
3.	KUB (Fisherman Busines Group) of <i>tuna abon</i> endeavor can not product <i>abon</i> routinely or it depends on ordering since it has not endeavor permission	0.12	3	0.36
4.	It has not alternative tools to manufacture <i>tuna abon</i> in modern way	0.09	4	0.36
5.	Trainings from related institution is rarely programmed	0.12	2	0.24
6.	Establishment and cooperation between fisherwomen and local government, Kendari to market <i>tuna abon</i> weakens.	0.06	1	0.06
<b>Amount</b>		<b>0.45</b>		<b>1.20</b>
		<b>1.00</b>		<b>2.53</b>

Based on analysis result of IFE matrix shows that the strength factor amount to 1.33, in which this score is bigger than score on the weakness factor, 1.2. This means the factors as main strength in KUB (Fisherman Busines Group ) of *tuna abon* industry is production result of *tuna abon* which is known and favored by consumers since it has distinctive taste. While, the main weakness is establishment and cooperation between fisherwomen and Lokal Government (Kendari) to market fish *abon* product is very low with smallest score is 0.03. It shows that KUB (Fisherman Busines Group ) of fish *abon* industry has strong internal position since it be able to use the strength and overcome the weakness well.

### b. Analysis of EFE Matrix

EFE matrix used to know how much the effect of KUB (Fisherman Busines Group) external factors of *tuna abon* product. EFE matrix presents KUB (Fisherman Busines Group) external conditions of *tuna abon* product consisting of Opportunities and threats which are counted based on the heavy.



Number	Evaluation Factor Eksternal	Heavy	Branch	Score
<b>Opportunities</b>				
1.	Local government of Pudai legalize KUB (Fisherman Busines Group) of <i>tuna abon</i> products as village level group.	0.11	3	0.33
2.	The raw material of <i>tuna abon</i> can be changed to other fish kinds.	0.07	1	0.07
3..	KUB (Fisherman Busines Group) of <i>tuna abon</i> products can produce <i>tuna</i> routinely. It has additional fund from <i>artisan</i> group activity.	0.07	2	0.14
4.	It has tools to manufacture <i>tuna abon</i> in modern way as the result of group member contribution.	0.07	3	0.21
5.	Trainings of KUB (Fisherman Busines Group ) member empowerment of <i>tuna abon</i> product from related local government, Kendari.	0.11	4	0.44
6.	Create cooperation between fisherwomen and local government, Kendari to market <i>tuna abon</i> in online form.	0.15	4	0.60
<b>Amount</b>		<b>0.58</b>		<b>1.79</b>

Number	Evaluation Factor Eksternal	Heavy	Branch	Score
<b>Threats</b>				
1.	Competition among KUB (Fisherman Busines Group) members who want to move to <i>Pulau Pandang</i> KUB (Fisherman Busines Group).	0.11	1	0.11
2.	The condition is not stable, so it decrease the stocks of <i>tuna</i> and the price is always changing.	0.07	3	0.21
3.	There is product competitor, mainly from <i>Pulau Pandang</i> KUB (Fisherman Busines Group ) that has closed location.	0.07	3	0.21
4.	The place and facility of products are older and not clean.	0.07	1	0.07
5.	The members do not have self confident in addressing their idea, so it is dominated by the group head	0.07	4	0.28
6.	Online marketing has internet network problems and the members have not mastered yet how to use the internet.	0.03	2	0.06
<b>Amount</b>		<b>0.42</b>		<b>0.94</b>
		<b>1.00</b>		<b>2.73</b>

Based on analysis result of IFE matrix shows that the opportunity factor amount to 1.79, in which this score is also bigger than score on the threats factor, 1.2. This means the factors as main opportunity factor in KUB (Fisherman Busines Group ) of *tuna abon* industry is create cooperation between fisherwomen and local government, Kendari to market *tuna abon* in online form with highest score is 0.60. While, the main threats factor is there is product competitor, mainly from

*Pulau Pandang* with smallest score is 0.06. It shows that KUB (Fisherman Business Group) of fish *abon* industry be able to respond external factors by using the opportunity to overcome the threats.

## B. Verification Phase

Verification phase is a phase to formulate strategy based on analysis result and identify environment condition of collected company internal and external factors. In this phase, it used SWOT matrix (Strength, Weakness, Opportunity, and Threats). Based on the strength, weakness, opportunity, and threats obtained from internal and external audit, it can be formulated a strategy alternative. Strategy formulation is done by using SWOT analysis.

## C. SWOT Matrix

<p style="text-align: center;"><b>Evaluation Factor Internal</b></p> <p><b>Evaluation Factor Eksternal</b></p>	<p><b>Strength</b></p> <ol style="list-style-type: none"> <li>1. KUB (Fisherman Business Group) members of <i>tuna abon</i> product have knowledge and skill in making <i>tuna abon</i> products</li> <li>2. It is nearly to the source of fishery result manufacture (<i>tuna</i>)</li> <li>3. Production result, mainly <i>tuna abon</i> product is known and favored by consumer since it has distinctive taste. It can be proven by the amount of consumers.</li> <li>4. It has production place</li> <li>5. It has active members in production process</li> <li>6. It is known by local government, Kendari city or other related institution.</li> </ol>	<p><b>Weakness</b></p> <ol style="list-style-type: none"> <li>1. Member's awareness is low. It can be seen the attendance of members for most meeting is low.</li> <li>2. Place of <i>tuna</i> stocks is relatively small, so it can not provide fish for <i>abon</i> routinely.</li> <li>3. KUB (Fisherman Business Group) of <i>tuna abon</i> endeavor can not product <i>abon</i> routinely or it depends on ordering since it has not endeavor permission</li> <li>4. It has not alternative tools to manufacture <i>tuna abon</i> in modern way</li> <li>5. Trainings from related institution is rarely programmed</li> <li>6. Establishment and cooperation between fisherwomen and local government, Kendari to market <i>tuna abon</i> weakens.</li> </ol>
<p><b>Opportunity</b></p> <ol style="list-style-type: none"> <li>1. Local government of Pudaï legalize KUB (Fisherman Business Group) of <i>tuna abon</i> products as village level group.</li> <li>2. The raw material of <i>tuna abon</i> can be changed to other fish kinds.</li> <li>3. KUB (Fisherman Business Group) of <i>tuna abon</i> products can produce <i>tuna</i> routinely. It has additional fund from <i>arisan</i> group activity.</li> <li>4. It has tools to manufacture <i>tuna abon</i> in modern way as the result of group member contribution.</li> </ol>	<p><b>Strategy S-O</b></p> <ol style="list-style-type: none"> <li>1. Cooperate to related institution and do marketing by online, and has active members in production activity (S5, O6)</li> <li>2. Keep the product result, mainly for <i>tuna abon</i> which is known and favored with distinctive taste, and produce <i>tuna abon</i> routinely with additional fund from <i>arisan</i> group programs (S3, O3).</li> </ol>	<p><b>Strategy W-O</b></p> <ol style="list-style-type: none"> <li>1. Looking for a suitable <i>tuna</i> fish stocks with large number to produce <i>tuna abon</i> routinely and <i>tuna</i> can be changed to other fishes (W2, O2).</li> <li>2. It has alternative tools to process <i>tuna abon</i> and empower KUB (Fisherman Business Group) members from related institutions of Kendari (W4, O5).</li> </ol>

<p>5. Trainings of KUB (Fisherman Business Group) member empowerment of <i>tuna abon</i> product from related local government, Kendari.</p> <p>6. Create cooperation between fisherwomen and local government, Kendari to market <i>tuna abon</i> in online form.</p>		
<p><b>Threats</b></p> <ol style="list-style-type: none"> <li>1. Competition among KUB (Fisherman Business Group) members who want to move to <i>Pulau Pandang</i> KUB (Fisherman Business Group).</li> <li>2. The condition is not stable, so it decrease the stocks of <i>tuna</i> and the price is always changing.</li> <li>3. There is product competitor, mainly from <i>Pulau Pandang</i> KUB (Fisherman Business Group ) that has closed location.</li> <li>4. The place and facility of products are older and not clean.</li> <li>5. The members do not have self confident in addressing their idea, so it is dominated by the group head</li> <li>6. Online marketing has internet network problems and the members have not mastered yet how to use the internet.</li> </ol>	<p><b>Strategy S-T</b></p> <ol style="list-style-type: none"> <li>1. Keep the product result, mainly for <i>tuna abon</i> which is known and favored by consumers since there is other closed product (S3, T3).</li> <li>2. Keep production location and fishery result manufacture, and keep the sanity of <i>fish abon</i> place (S2, T4).</li> </ol>	<p><b>Strategy W-T</b></p> <ol style="list-style-type: none"> <li>1. Do trainings from related institution of Kendari, and group members should be confident and do not changed to others (W5, T1).</li> <li>2. Produce routinely and do promotion/marketing by online for increasing the consumers (W3, T6)</li> </ol>

## CONCLUSION AND SUGGESTION

### Conclusion

Based on the result of this study can be taken the conclusions as follow:

1. Fish processing which is done by fisherwomen shows that the fish can be not only consumed directly but also can increase economic value by processing in the form of fish *abon*, increase the production value if the women can produce their own fish *abon*, has fish *abon* with distinctive taste, make the label and pack well, sell their own products, and profit target.
2. The behavior of fisherwomen in utilizing technology information in the use of mobile phone have high levels of knowledge and skill, but the use of computer was low, nevertheless they have proactive attitude in utilizing information technology to support farming activities.
3. The strategy of fisherwomen empowerment in the marketing of fish *abon* product through implementation of cyber extension can be done by improving the strategies of: (a) improving knowledge and skill of KUB (Fisherman Business Group) members in processing of *tuna abon* products because the products are known and favored by consumers since it has distinctive taste, (b) create the marketing cooperation of *tuna abon* with related agencies and it is also done by online marketing.

## Suggestion

After conducting this study, there are several acts to be done as improvement of this similar activity, namely giving allocation of more time, so that it needs to be explained completely. It also need demonstration for certain manufacture, so it will be understand and mastered by the users easily.

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