

IMPLEMENTATION OF HALAL VALUE CHAIN IN BLOCKCHAIN-BASED HALAL INDUSTRY IN ACEH PROVINCE

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Abstract

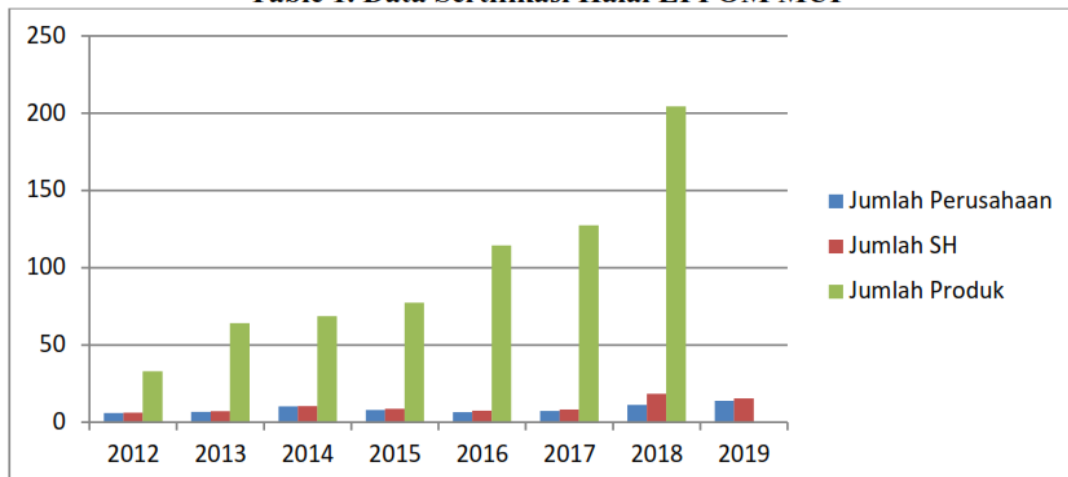
The purpose of this research is to find out the importance of implementing databases in block chain-based supply chains. As for the object of the research, all SMEs in Aceh have the characteristics of exporting their products abroad. as for this type of research is qualitative research with data collection methods, namely interviews. The conclusion obtained is that in the supply chain in Aceh province, SMEs need a serious data revolution. This is based on the growing demand for halal products in the province of Aceh. Therefore, SMEs in Aceh Province need blockchain as a database in the supply chain. To maximize this, cooperation from the government, the community, and business actors is needed

Keywords: *Blockchain, Halal Industry, IKM.*

1. INTRODUCTION

The growth of the halal industry in Indonesia in recent years has increased sharply (halal boom). Even though the COVID-19 outbreak hit Indonesia, the halal industry curve showed stable stability at the level of 2.1% (Ramadhan, 2019; Bank Indonesia Report, 2020). In addition, the demand for halal certificates also increases every year, for example the number of products offered in 2019 reached 274,496. The number of halal certificates can be seen in the table below:

Table 1. Data Sertifikasi Halal LPPOM MUI



Sumber: *halalMui.org (data sudah diolah)*

The table above shows that the halal product curve is increasing every year. According to the author, the increasing development of halal products is due to the increasing consumption patterns of Muslims who are increasingly concerned about the halalness of a product (Al-Ansi, 2019; Aziz, 2013; Ela Safira, 2019).

Basically the halal industry is not only growing rapidly in Muslim countries. However, the halal industry is also a "prima donna" in Muslim minority countries. Dubai Islamic Economy Development Center (DIEDC) and Thomson Reuters reported that consumers reported in 2017 the consumption of halal products was worth US\$ 1.3 trillion in halal food. This value is estimated to reach US\$ 1.9 trillion by 2023. Demand for halal consumption does not only come from Muslims,

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but also from non-Muslims (Talib, 2008). According to Henderson, the growth of the Halal Industry does not only have an impact on the tourism sector, but also has implications for the development of travel and health (Henderson, 2016).

The State of Global Islamic Economy (SGIE) Report 2020/2021, Indonesia's position in the global Islamic economy and finance is ranked 4th out of 73 countries. As reported by Kemenkeu.go.id, this achievement has increased compared to 2018 from 10th place. In its development, the Indonesian government continues to develop a halal value chain system. Moreover, after becoming part of the global value chain, Indonesia has started to pioneer the implementation of halal traceability and halal assurance system. To optimize the traceability system, and the assurance system according to blockchain authors is a panacea in the use of the data bank (Hastig and Sodhi, 2019; Kamble, 2020). The effectiveness and efficiency of using blockchain is considered beneficial. This is due to the transparency and accountability of blockchain (Kittipanyangam and Tan, 2020; Sunny et al, 2020) traceability (Rejeb, 2018; Qian, et al, 2020; Tan et al, 2020), company performance (Kamble et al, 2020) and business model (Weking et al, 2020).

Basically the application of blockchain in industry has been applied by various food industries outside Indonesia. The food industry sees that blockchain is the main potential in advancing the data bank owned by the industry (Edmund, 2018). Therefore, the food industry in the world uses blockchain for food safety, transparency, quality improvement and tracerbility (Kamilaris et al, 2019; Wong, 2020). However, theoretically according to Zwitter and Boisse-despiaux the use of blockchain in the halal industry is still very complex and requires a deeper study (Zwitter & Boisse-Despiaux, 2018; Rogerson and Party, 2020).

To develop the halal industry, especially in the halal value chain in Aceh Province. According to the authors, the use of new technologies such as blockchain is a very feasible thing to use. Moreover, the halal industry, especially in the halal food sector, has received an enthusiastic response from the Indonesian people. This response is a huge opportunity for the government to develop the halal industry. However, the challenges in using blockchain as a halal value chain data bank will definitely be big. Therefore, in this study, researchers will observe, explore, and investigate more deeply (Kamilaris et al; 2019). With the blockchain, fraud in the development of the halal industry, especially the halal value chain, will be minimal (Treiblmaier, 2018; Queiroz et al., 2019; Kohler and Pizzol, 2020). In addition, the existence of blockchain can be evaluated to the maximum.

2. LITERATUR REVIEW

Ramadhan Razali, 2021 "Akselerasi Daya Beli Masyarakat Terhadap Produk Halal Melalui E-Commerce di Provinsi Aceh" This research shows that with Internet users have implications for people's purchasing power of halal products. people in Aceh Province at this time do the majority buying and selling transactions via e-commerce. Among the reasons people in Aceh province using e-commerce because of the ease of the existing system in e-commerce applications. This phenomenon does not only occur in one sector of the halal industry, it also occurs in various sectors, be it the fashion, food, and other sectors.

Mohd Helmi Ali, Leanne Chung, Ajay Kumar, Suhaiza Zailani, Kim Hua Tan, 2021. "Sustainable Blockchain Framework For The Food Supply Chain: Lessons From Malaysia. This study proposes a sustainable blockchain framework for the halal food supply chain. As is widely acknowledged, blockchain could enhance supply chain integrity, but its impacts on the halal food supply chain are unknown. Disruptive technologies for Industry 4.0 can improve transparency, which is desperately needed in the food supply chain; however, various challenges are also incurred. Based on five in-depth halal food supply chain case studies, this paper reveals a practical framework for overcoming the challenges faced by the halal food supply chain pertaining to blockchain implementation. The framework comprises five key challenges that are vital to small and medium enterprises in halal food supply chain blockchain implementation. The findings also



indicate that the halal food supply chain can gain a congruent and fresh perspective in inducing or superseding blockchain technology. In addition, the roles of supply chain integration and food regulations as the key enablers on the success of blockchain technology in the halal food supply chain are also discussed in this study. Additionally, the limitations and future research directions are also discussed.

3. IMPLEMENTATION METHOD

As for the type of this research is qualitative research with interview data collection method. Interviews were conducted with IKM entrepreneurs who already have overseas business networks. Besides that, the respondents in this study were from government elements, namely members of the Aceh Representative Council, the Aceh Ulema Consultative Assembly, the Cooperatives and Small and Medium Enterprises Service, academics and others. Due to the limited data obtained, in conducting interviews the researchers did a snowball in getting valid respondents and in accordance with this study.

4. RESULT AND DISCUSSION

1. Overview of the Halal Industry in Aceh Province

Indonesia is a country that has many historical cities and charming tourist attractions. The integration of religion, norms and ethics in the tourism object has the potential for commercial travel (tourism) market. Judging from the data, sharia tourism has increased from year to year (yoy). According to the author, optimizing the management of halal tourism in the country is able to increase the State Revenue and Expenditure Budget (APBN). Halal tourism is not just a tourist place, but also tourism that has an integration of religious values as well as customs and culture. So it is ensured that all forms of tourism objects are offered to various types of services, in accordance with Islamic rules and do not violate religious prohibitions.

The Halal industry, especially halal tourism, does not only have potential in Indonesia as a whole, but also has great economic potential in the province of Aceh. The first province to implement the sharia system in all lines is a large share of the halal industry market. In addition to the majority of the community being Muslim, halal food, the province of Aceh also has a beautiful tourist attraction. The beauty of the attractions offered is able to lure both domestic and foreign tourists. In addition to this beauty, halal products in Aceh are also guaranteed to be halal. This is based on the fact that almost the entire community in Aceh Province adheres to Islam as reported by BPS, the total number of people in Aceh is 5,372 million, with a total Muslim population of 5,211 million. This indicates that almost the entire Acehnese people are Muslim.

We can see the application of Islam in Acehnese society from the culinary aspect that is served. Culinary served by IKM and MSMEs in Aceh province is based on Sharia. The increasing number of requests for halal products has implications for the increase in SMEs and SMEs in the province of Aceh. as reported by the number of micro and small businesses by labor group amounting to 106,918. while the number of SMEs and SMEs that have established partnerships is 3,105. and those who have promoted outside the province have reached 1,398 with 22 the number of MSMEs and IKMs that have marketed abroad (bps, 2022).

The increasing number of halal industries in Aceh can attract investors to invest in the Veranda of Mecca province. However, of course, to attract these investors requires cooperation from various parties as a form of building a kaffah sharia province of Aceh.

2. Implementation of Block chain-Based Halal Value Chain in Aceh

a. Geoproduction and Marketing of SMEs in Aceh Province

According to Saurabh Ahluwalia et al, blockchain technology has the potential to be a nuisance in various industrial sectors (Saurabh Ahluwalia, 2020). We can feel the implications of blockchain from the existence of cryptocurrencies. The digital currency revolution and various transactions are constructing a new paradigm. The construction explains that e-money and cryptocurrency are valuable assets. The characteristics of blockchain as a decentralized technology are built through sophisticated algorithms.

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Research on blockchain from an economic point of view seems very limited. As explained by Larios Hernandez, blockchain discourse in economics only revolves around the study of entrepreneurial opportunities in the non-banking area (Hernandez, 2017). Even though blockchain technology can also be used in the food supply chain for SMEs and SMEs. To minimize the existence of information asymmetry, according to researchers, the use of blockchain as a database is very effective.

The existence of blockchain in MSMEs and SMEs can also encourage investors to invest. Moreover, the digital economy opportunities that can be optimized by MSMEs and SMEs from internet users reach 202.6 million or 73.7% of the total population of Indonesia. In addition, in terms of the banking sector, the allocation of financing directed by banks to MSMEs and SMEs is increasing every year. The integration and implementation of blockchain technology for MSMEs and SMEs is expected to be a comprehensive solution for MSMEs and SMEs. Both in terms of providing capital to entering into the security and business development of the MSME and IKM. According to Budi Setiawan, the financing provided by block chain-based fintech is predicted to be able to solve almost 70 percent of MSME capital problems (Setiawan, 2019).

To carry out an information revolution for MSMEs and SMEs, the Indonesian government has also collaborated with Singapore Management University to conduct training and deliver learning materials about blockchain. However, the facts on the ground, both IKM and MSMEs in Indonesia, especially in Aceh Province, are not ready to accept the revolution. as explained by Yasir Yusuf that both MSME and IKM traders who are halal-certified in aceh still don't think about the use of big data (Block Chain), because our traders prioritize halal certification as business communication that can generate trust for consumers, and according to Ust. Yasir MSMEs that use big data (Block Chain) in Aceh don't seem to exist yet, because to ensure that Value Chain is the problem now (Yusuf, 2022).

Even though the number of MSMEs and IKM in Aceh is increasing every year. For example, in 2019 the number of halal certifications issued by LPPOM MPU was 184. In 2020 that number decreased to 150. In 2021 the number of halal certifications issued by LPPOM was 213. 2019-2022). However, it seems that the issue of certification is LPPOM MPU's homework every year. Whereas research conducted in 2021 also found the same thing (Ramadhan Razali, 2021).

The discourse on the implementation of the halal value chain in the halal industry in Aceh province based on the block chain has not been conducted. In fact, the sales made by IKM in the province of Aceh have been very broad. For example, the first respondent in this study is IKM Adee Kaknah which has opened branches in 1 district and one municipality, namely Aceh Besar District and Subulussalam City. Adee Kaknah itself is a halal food producer located in Meuraksa Village, Meredue District, Pidie Jaya Regency. The information media used for ordering is still using the telephone with a message-distribution system.

Whereas in terms of regulations, Adee Kaknah has pocketed a halal certificate with No. The P.IRT is 3061118010007-25. Which means wide distribution can be done. However, the IKM development strategy itself is still carried out with a family model with traditional systematics. If viewed from the side of turnover, the turnover obtained by Adee Kaknah is also quite large, namely 20-50 million per week with a total production of 500 pcs/day for large sizes. However, the financial reporting system that is carried out only uses bookkeeping without "touching" electronics. Which means that there is a very high chance of non-transparency. As reported by Zahir Accounting, one of the disadvantages of using the first manual is the high cost. Using the manual has implications for the large number of opportunities for human error to occur. so that business actors have to re-create the financial statements, and it will take a long time.

Second, limited access. According to the author, manual bookkeeping has implications for limited access to business actors (Razali, 2020). So that business actors must continue to monitor and update business financial activities (Razali, 2021). Third, low supervision. Using manual bookkeeping will make it difficult for business actors to monitor the flow of business finances. In



addition, financial reporting using manual bookkeeping also does not rule out the possibility of fraud. And fourth, the risk of data loss. Financial reporting using manual bookkeeping has a greater risk of being lost or damaged (Accountance, 2016).

Surprisingly, contrary to financial bookkeeping, the promotions carried out by adee kaknah have spread to the internet world. Adee's production promotion is done through social media such as Instagram. For payment, adek kaknan still uses mobile banking. Even though at this time payments and promotions can be done using a market place and can even use their own site (Well, 2022). According to Aris Susanto, the use of the internet as a business tool will increase the company's competitiveness. Because the use of the internet will help the company's marketing program so that it will be increasingly known by consumers (Aris Susanto, 2020). According to researchers, the use of cyberspace is also very effective and efficient. Through cyberspace, Adee Kanah can carry out her business activities such as promotions, product explanations, job search, and transactions.

The components that can be entered into the site are a credit card or ATM as a means of payment, a virtual shop built into an internet homepage, and clear payment lines in order to provide guarantees for product selling companies to obtain payments from buyers. Meanwhile, the delivery of products made by Adee Kaknah uses a courier service. To track the courier service, consumers track it through the courier site. For the time being, only one courier is accepting delivery services.

The second respondent in this study is Usaha boh itek masen or abbreviated as BIMA. This business has been running since 2010 having its address at Jalan embankment Kuta Ala, Kuta Alam, Banda Aceh. Sales from "IKM" are still around Aceh Rayeuk and Banda Aceh. Boh Itek Masen still produces 30,000 products every week at a price of Rp. 3,200 per item. In fact, if viewed from the point of view of geoconsumption, salted duck eggs are one of the typical foods of Aceh province. This salted duck egg culinary tour is no stranger to the ears of the public, especially the people of Aceh. The increasing number of people in Aceh province from year to year has implications for the increasing demand for salted duck eggs. The increase in population in Aceh province can be seen in the table below.

Jumlah Penduduk Provinsi Aceh Tahun 2018-2020					
No.	WILAYAH	Jumlah Penduduk (Jiwa)			
		2018	2019	2020	2021
1	SIMEULUE	92393.00	93228.00	92865.00	94,368
2	ACEH SINGKIL	121681.00	124101.00	126514.00	129,333
3	ACEH SELATAN	235115.00	238081.00	232414.00	236,487
4	ACEH TENGGARA	212417.00	216495.00	220860.00	227456
5	ACEH TIMUR	427567.00	436081.00	422401.00	429,094
6	ACEH TENGAH	208505.00	212494.00	215576.00	219,098
7	ACEH BARAT	205971.00	210113.00	198736.00	198,411
8	ACEH BESAR	417302.00	425216.00	405535.00	416,532
9	PIDIE	439131.00	444976.00	435275.00	435,797
10	BIREUEN	461726.00	471635.00	436418.00	444,383
11	ACEH UTARA	611435.00	619407.00	602793.00	600,163
12	ACEH BARAT DAYA	148111.00	150393.00	150775.00	153,213
13	GAYO LUES	92602.00	94100.00	99532.00	101,754
14	ACEH TAMIANG	291112.00	295011.00	294356.00	300,831
15	NAGAN RAYA	164483.00	167294.00	168392.00	172,484
16	ACEH JAYA	91087.00	92892.00	93159.00	94,761
17	BENER MERIAH	145086.00	148175.00	161342.00	166,448
18	PIDIE JAYA	158091.00	161215.00	158397.00	159,941
19	BANDA ACEH	265111.00	270321.00	252899.00	253,198
20	SABANG	34571.00	34874.00	41197.00	42,696
21	LANGSA	174318.00	176811.00	185971.00	185,836
22	LHOKSEUMAWE	203284.00	207202.00	188713.00	191,034
23	SUBULUSSALAM	80215.00	81417.00	90751.00	94,571
	ACEH	5281314.00	5371532.00	5274871.00	5,347,889

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Based on the table above, it can be seen that the increasing number of people in Aceh province has implications for the demand for eggs. However, as reported by BPS, the amount of egg production in Aceh is not able to meet the needs of the consumers themselves. This is recognized by yah check as a business actor from boh itek masen. According to the check, to meet the needs of the boh itek masen product, the check must buy raw eggs from other provinces. Importing eggs from other provinces will automatically have implications for the increase in the product itself.

The limited availability of eggs also makes boh itek masen unable to export their products to other countries. Even though according to the check, the demand for masen boh itek in other countries is very large, especially in Malaysia (Check, 2022). However, with the limited number of boh itek masen products, well, check is able to develop these eggs into other products, such as salted egg yolk and white powder products. Marketing has also been done through social media, but the limited availability of egg supply is the root of the problem in this IKM.

The third respondent in this study was Dendeng Aceh. The beef jerky business in Aceh is one of the home industry businesses that was founded in 1982 and is located in Lueng Bata. According to Lukman Hakim, we can find this beef jerky around the city of Banda Aceh, Saree or Seulawah. This food is considered as one of the souvenirs of the "kutaraja". The product produced by this jerky can consume one cow in one day. However, of course, if analyzed, one cow is a very small amount in a product. As reported by hashmicro, in the regulation of the Ministry of Industry it is explained that medium-sized industries have assets worth Rp. 200 million to Rp. 10 billion, while the turnover obtained is in the range of Rp. 1 billion to Rp. 50 billion (Marendra, 2022). Of course, with the amount of staples per day the turnover obtained by Aceh beef jerky is not up to the range of Rp. 1 billion.

Promotions carried out through online media also have implications for increasing the amount of marketing. Currently, sales of Aceh beef jerky products have spread to almost all Aceh provinces, even to other provinces. IKM Dendeng Aceh products have also exported their products to foreign countries such as the Netherlands and Malaysia (Hakim, 2022). However, it seems that the sale of this product is only synchronous, not diachronic.

In contrast to the three respondents at the beginning, Socolatte is one of the SMEs that is able to produce its products more independently. Socolatte manages products in the chocolate field. Established in 2010 from home industry. Cocoa beans are obtained through fostered farmers. According to Nanda, the funds obtained by Socolatte came from the assistance of the OISCA-JFPR 9073 project. With this assistance, Socolatte can maximize its products through exports to Japan. From a marketing perspective, Socolatte maximizes its promotions through digital media, be it Instagram, Facebook, TikTok, YouTube, and the official website.

According to Lustono, among the factors that influence consumer purchases include digital or online promotional media. According to him, the use of promotions through appropriate and effective social media can increase the positive image of an online store in the eyes of consumers. The strength of promotional strategies through this type of social media is built on the basis of pleasure, hobbies, lifestyle, loyalty, and curiosity from the consumers themselves (Lustono, 2020). Therefore, the existence of good and attractive digital or online promotional media will increase purchasing decisions.

The second IKM that produces its products independently is BITATA. BITATA stands for "Let Add Taqwa". BITATA is engaged in producing food or processed food. This IKM was founded in 2017 having its address at Jl. Tgk in Lhong, No. 3, Hamlet of Keuchik Mahmud, Gampong Peunyerat, Kec. Banda Raya, Banda Aceh City. Compared to other IKMs that are still one investor, Bitata has found investors in its production. With the presence of other investors, Bitata is more independent than other SMEs. In developing its business as explained by Ratu, the first product that was produced was the rice oil seasoning. Bitata then added other products such as fried onions, potato chips, cheese sticks, and crispy garlic (Ratu, 2022).



The products produced by BITATA have also spread to Suzuya, Indomaret, and Alfamart throughout Aceh. According to the author, selling products through supermarkets is very effective. This is based on consumer appetite for buying interest in supermarkets is very large. According to Trivita Octaviani, the large market interest of consumers in buying goods in supermarkets is able to shift the business of traditional markets. Today's society prioritizes convenience in shopping. In addition to offering convenience, supermarkets are considered cheaper, friendly and courteous service, a variety of equipment sold, as well as making it easier for buyers to choose goods according to what they want, and also the absence of an element of bargaining between buyers and sellers (Trivita Octaviana, 2019). In addition to marketing through supermarkets, BITATA also conducts promotions through digital markets. Not only that, BITATA has prepared content creators to attract buyers. Orders and payments are also made through the BITATA official website.

b. Blockchain Implementation as a Database for the Halal Industry in Aceh Province

The application of blockchain to SMEs and MSMEs is considered very important. In addition to saving production and logistics costs. Blockchain is considered to be able to attract investors both at home and abroad. However, throughout this research, researchers have not found any SMIs in Aceh province that have implemented blockchain. In fact, most IKM and MSMEs in Aceh Province still use manual bookkeeping as basic data. As explained above, the use of manuals can trigger information asymmetry. The information that should be obtained by top business actors will not be in the same direction and in accordance with the facts on the ground. As was done in Adee Kak Nah's IKM, based on the family basis, financial reporting is only reported once a week. In fact, by using blockchain, you as a business actor can check the available data efficiently and effectively. While in the field of promotion, Adee Kak Nah is actually able to do promotions and marketing through the official website. This can drive the value of the marketing strategy undertaken. Even with unlimited internet access in the current era, the implications for Adee Sis' introduction are even wider.

The same thing happened to BIMA and Dendeng Aceh. In fact, with the increasing number of tourists traveling to Aceh Province, it is possible to maximize the promotion of halal tourism. According to BPS, the number of foreign tourists traveling increased before Covid, for example, in 2020 the number of tourists in January reached 3,982 people. While in February there were 4,030 people. This number then decreased due to the emergence of the Covid-19 virus. However, with the disappearance of the COVID-19 virus, it seems that foreign countries are turning their attention to natural tourism. BPS recorded that from January to May, there were 47 foreign tourists who came to Aceh province. This indicates that tourists are starting to return to "visit" tourism in the province of Aceh. The increasing number of tourists will certainly have an impact on the IKM and MSME sectors in the province of Aceh, especially sectors that offer special culinary delights to tourists. According to researchers, the implementation of blockchain as a database in SMEs will automatically attract investors by accident.

Of course, blockchain implementation for MSMEs and SMEs requires assistance and encouragement from the government. However, based on the results of the researcher's interview with the head of the IKM DISPERINDAG, it seems that the government through the Disperindag only helps in terms of fostering IKM and MSMEs. In addition, the issue of halal labeling is an "old-fashioned" problem that is still unresolved. DISPERINDAG admits that in terms of halal labeling, it only facilitates and assists (Niken, 2022). The rest of the MPU does the assessment. Based on the observations made by the researchers, it seems that regulation at MPU is also a problem. MPU seems to be very regulatory in terms of halal certification. In addition, the socialization carried out on MSMEs and SMEs is also very lacking.

Whereas with the existence of halal labeling, IKM and MSME products can be exported out. In addition, marketing can be done easily. In response to this, according to Ihsanuddin, to develop human resources in IKM and MSMEs, the government must conduct special training for IKM employees. IKM and MSMEs as halal industry players must provide guidance. In addition, the owner must follow the times and we should provide an understanding to change the mindset in line

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with the current developments. Ihsanuddin hopes that big data will make data transparency so that it stimulates investors. Supposedly the existence of big data can facilitate and maximize logistics delivery and can save production costs (Ihsanuddin, 2022). According to Yasir, the use of blockchain in IKM and MSMEs in Aceh province is very necessary. However, the current problem is the reconstruction of the Halal supply chain which is still "in pieces". Where the business actors have not thought about how to make their business can be enjoyed by their children and grandchildren.

As a reduction from the analysis according to the researcher, only 1 IKM is close to using digital marketing and digital data as promotional materials, namely BITATA. In order to create transparency to investors, BITATA uses Jurnal.id as financial reporting to investors. In this report, investors can review financial reporting effectively and efficiently, without having to spend a larger budget. In addition, BITATA also conducts periodic financial audits.

5.CONCLUSION

Based on the research analysis above, it can be concluded that:

There are no SMEs or SMEs that use blockchain as a database, both in terms of production and logistics delivery. Throughout this study, researchers found that IKM and MSMEs in Aceh province still use very traditional financial reports. However, there is one IKM and MSME that has started to use digital data as material for financial reporting and as a promotion. Meanwhile, another obstacle is the lack of understanding of IKM business actors in promoting and marketing their products optimally by using the internet of things and blockchain as a database.

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