

## **UNIVERSITY GRADUATES ROLE IN DEVELOPING OYSTER CHIPS SALES IN FACING INDUSTRY 4.0 CHALLENGES**

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### **Abstract**

*University graduates unemployment rates increase every year even though the opportunity as an entrepreneur is huge. Businesses that utilize superior commodities such as oysters in Aceh are tended to be accepted in the community. Oyster farmers in Aceh having low welfare because they only rely on fresh oysters sales. The innovation of oyster chips has been initiated by Syiah Kuala University students but the sustainability of this business has failed. This study observes the role of university graduates in the development of Alue Naga Community Oyster Chips sales and analyzes this business opportunity in the future. This is qualitative research with a descriptive analysis approach by observing the location and conducting interviews with oyster farmers and fresh-graduates with several disciplines. The results obtained that the main problems encountered by the farmers are marketing skills, information systems, technology, and business management, so collaboration between oyster farmers and fresh-graduates in Aceh with several disciplines is needed. University graduates who are having Industry 4.0 challenges understanding during college can play an active role in participating in the production and sale of oyster chips. Also, to increase the revenue, this product can turn to be gifts for people who came to Aceh.*

**Keywords:** *University graduates, Oyster chips, Entrepreneur, Industry 4.0*

### **INTRODUCTION**

Undergraduate unemployment in Indonesia has always been a familiar problem in current developments. University graduates in unemployment increase every year. This is triggered by the lack of human resources qualities based on skills and the dependence of graduates to become employees, even though the employment opportunity as an entrepreneur is huge. Meanwhile, the world needs to create jobs to reduce the high unemployment rate, especially among young people (Herman, 2019).

Employability is secured due to one's competencies (e.g., knowledge and skills) to meet new needs in a changing workplace. In other words, graduates who possess a good blend of hard skills and soft skills and which are highly valued by employers are likely to be employable (Ang, 2015). The global industrial landscape has changed deeply in the last years and is a result of successive technological developments and innovations. (Pereira et al., 2017)

Businesses that utilize superior commodities in an area are likely to be accepted in the community, especially in Aceh where there are many superior commodities, one of which is oysters. Alue Naga is famous as one of the fisherman's villages in Banda Aceh. In addition to fish and other marine products, oysters from Alue Naga are also one of the region's main commodities. Oyster farmers in Aceh are having low welfare, they have an income below the monthly minimum wage which triggered by the behavior of selling their oysters. The innovation of oyster chips has been initiated by Syiah Kuala University students but the sustainability of this business has failed due to lack of tools and skills. This makes oyster chips not developed in terms of production, taste, packaging, or marketing. However, the qualification strategies for the current workforce are required. Employees need to become enabled to take on more strategic, coordinating and creative activities. (Pereira et al., 2017). Oyster chips potentially to be developed both in terms of production, taste, packaging, and marketing so that it is expected to become a permanent livelihood that can increase the income of the people of the area. It also can be a souvenir from the area.

The level of income and welfare of the people of Gampong Alue Naga community who mostly have livelihoods as fishermen (middle to the lower economic group) are still relatively low. This is very unfortunate because considering this area is one of the coastal areas in Banda Aceh which produces the most oysters with very minimal utilization. In addition to public policy and the facilities provided, the availability of conditions and the readiness of human sources in the community at large ultimately determines the scope, intensity, and profile of entrepreneurial behavior. Entrepreneurship education that is relevant and meets the requirements regarding curriculum, syllabus, delivery system, instructors, participants, instructional methods, assessment systems, processes and results of education is indeed potential in giving birth to prospective future entrepreneurs.

Human resources in the form of the large number of productive age population who do not have jobs (especially the mothers) contained in this area are still classified as less productive/empowered. The lack of employment makes mothers (wives of fishermen) can only become oyster collectors and cannot contribute much to increase the family's economic income. There is still a lack of innovation in developing and producing oyster chips that were previously made. The problem is that local education is still low, they find it difficult to compete with existing souvenirs if they do not have help from more skilled people and graduates who have difficulty finding work can create jobs as entrepreneurs, especially they can increase the welfare of the surrounding community and building relationships. Entrepreneurs go through life looking for opportunities to sell, innovate to bring value to customers and all their shareholders. The highest and hardest is to reproduce this value, the greater is their profits, and benefits. (Luthra & Mangla, 2018).

In the era of the industrial revolution 4.0, sales using conventional sales systems are no longer effective in facing competition in product sales. In increasing sales, it is necessary to design an appropriate supply chain system and putting the big role of information systems and technology. Assessment of the understanding of the Alue Naga community about industry 4.0 is important to run this business. The basic principle of Industry 4.0 is the integration of machines, workflows, and systems, by implementing intelligent networks along the chain and the production process to control each other independently (Thoben, Wiesner, & Wuest, 2017).this new industrial paradigm is transforming the current ways of value creation, since it involves

changes in the technical and production developments, which in turn has brought extensive organizational consequences and opportunities (Arnold et al, 2017, Baueur et al., 2015) providing more cooperative environments, improved customer relationships or new product and services offers.(Ignacio, Santana, Afonso, Zanin, & Wernke, 2018).

Industry 4.0 based sustainability-oriented concept helps industrial managers not only to incorporate environmental protection and control initiatives but also to couple process safety, such as resources efficiency, employee and community welfare, smarter and flexible processes measure in their supply chains (Luthra & Mangla, 2018). The knowledge of industry 4.0 challenges expected to be understood by university graduates to prepare them in the working life. The challenges caused by the Industry 4.0 also reflected the oyster chips business which is going to be very hard tackled by the oyster farmers by themselves.

Based on the background above, researchers believe it is important to analyze the role of university graduates as entrepreneurs to apply the knowledge they get from lectures to join the industry or business in their environment, which is the development of the oyster cracker industry in Banda Aceh's Alue Naga. The purpose of this study is to look at things that can be improved to run the oyster cracker business through the role of university graduates which will bring positive impact for both parties.

## **METHOD**

This research type is qualitative research with a descriptive analysis approach. Descriptive analysis research is research that aims to reveal existing facts and describe them according to phenomena. According to Usman and Purwono (2009, p.129), the descriptive research is describing something in the form of pictures or photographs obtained from field data or researchers explain the results of research in words, and both in research can be used to complement each other.

Qualitative descriptive research seeks to describe all the symptoms or conditions that exist, namely the state of symptoms according to what they were at the time the research was conducted. Through this method, the researcher will describe the problem discussed based on relevant data obtained and interpret the data referred to as a process analysis to look for relevance between variables.

The population used in this study were University Graduates in Aceh both men and women who had not worked, either because they had not gotten the job that was in line with expectations, many times tried to apply for a job but failed or were deliberately unemployed. This study uses a purposive sample, which is research on a group of subjects based on population characteristics that are already known (Arikunto, 2002).

Samples taken amounted to 30 people from university graduates with several random disciplines with characteristics or characteristics determined by researchers, namely:

- a. Male/female, University graduates
- b. The duration of unemployment is at least 2 months after graduation
- c. Currently actively looking for work
- d. Age more than 23 years
- e. Have an Aceh Identification Card (KTP)

Also, interviews were conducted with five women who had run this oyster chips business. The time and place of this study were in the village of Alue Naga to observe

the progress of this oyster cracker business and the time of the study ranged from July to August 2019. The research method was conducted by observing Alue Naga conducting interviews with oyster fishermen mothers regarding problems in the production and marketing of oyster crackers and conducting interviews and distributing questionnaires to 30 fresh-graduate respondents who do not have jobs with several disciplines and study Alue Naga people's understanding of Industry 4.0 and the role of fresh university graduates in becoming entrepreneurs with raw materials of superior commodities in Aceh.

## **RESULT AND DISCUSSION**

After graduating from university, individuals do not understand what to do after graduation. This condition can be a stressor for university graduates so that it will cause anxiety. This anxiety arises because of the difficulty of getting a job (Thoben et al., 2017). Here are some findings related to the role of university graduates to run local business.

### **Industry 4.0 Challenges**

Industry 4.0 does offer many benefits but also has challenges that must be faced. Drath and Horch (2014) argue that the challenges faced by a country when implementing Industry 4.0 are the emergence of resistance to changes in demographics and social aspects, political instability, limited resources, risk of natural disasters and demands for the adoption of environmentally friendly technologies.

A very drastic change in the field of ICT (Information Communication and Technology) has also penetrated the marketing world. Industry 4.0 as a phase of the technological revolution changes how human activities take place in scale, scope, complexity, and transformation from previous life experiences. Humans will even live in global uncertainty, therefore humans must have the ability to predict the fast-changing future. Each country must respond to these changes in an integrated and comprehensive manner. The response involved all global political stakeholders, ranging from the public sector, private sector, academia, to civil society so that industry challenges 4.0 can be managed into opportunities.

These technological advancements have also expanded into more impressive businesses over the years. Because the development of this technology will never stop here (Darma, dkk., 2019). Industry 4.0 based sustainability-oriented concept helps industrial managers not only to incorporate environmental protection and control initiatives but also to couple process safety, such as resources efficiency, employee and community welfare, smarter and flexible processes measure in their supply chains.

Hermann et al (2016) added, there are four industrial design principles 4.0. First, interconnection which is the ability of machines, devices, sensors, and people to connect and communicate with each other through the Internet of Things (IoT) or the Internet of People (IoP). This principle requires collaboration, security, and standards. Second, information transparency is the ability of information systems to create virtual copies of the physical world by enriching digital models with sensor data including data analysis and information provision. Third, technical assistance which includes; (a) the ability of an aid system to support people by consciously combining and evaluating information to make the right decisions and solve urgent problems in a short time; (b) the ability of the system to support humans by performing various tasks that are unpleasant, too tiring, or unsafe; (c) includes visual and physical assistance. Fourth,

decentralized decisions which are the ability of virtual physical systems to make their own decisions and carry out tasks as effectively as possible.

Irianto (2017) simplifies industry 4.0 challenges namely; (1) industry readiness; (2) trusted workforce; (3) ease of socio-cultural regulation; and (4) diversification and job creation and industry opportunities 4.0 namely; (1) ecosystem innovation; (2) competitive industrial base; (3) investment in technology; and (4) integration of Small and Medium Enterprises (SMEs) and entrepreneurship.

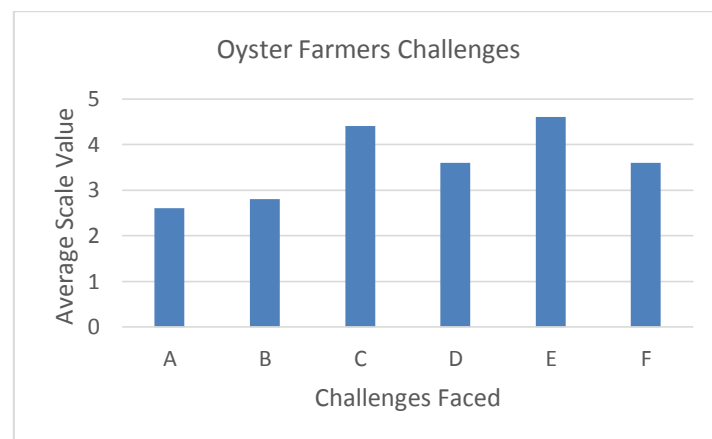
Therefore these challenges should be a concern to any business in our society, including oyster chips product of Alue Naga Community. To achieve successful product sales, all elements in the product supply chain must be considered including industry challenges 4.0. here are some of the important thought that can be analyzed based on both parties perspective. The challenges encountered in the field in running the business code as follows

**Table 1** Challenges for Oyster Farmers Code

Code	Challenge
A	Use of tools in the production process
B	Cost management
C	Promotion and marketing
D	Market and competitive opportunities understanding
E	Ability to use a smartphone/computer (technology-based devices)
F	Standardization of the oyster chips recipe and packaging

#### Oyster Farmers Perspectives

Based on the results of interviews with the oyster farmer mothers who want to run this oyster cracker business, the challenges scored of each variable in scale 1 to 5 are as follows.



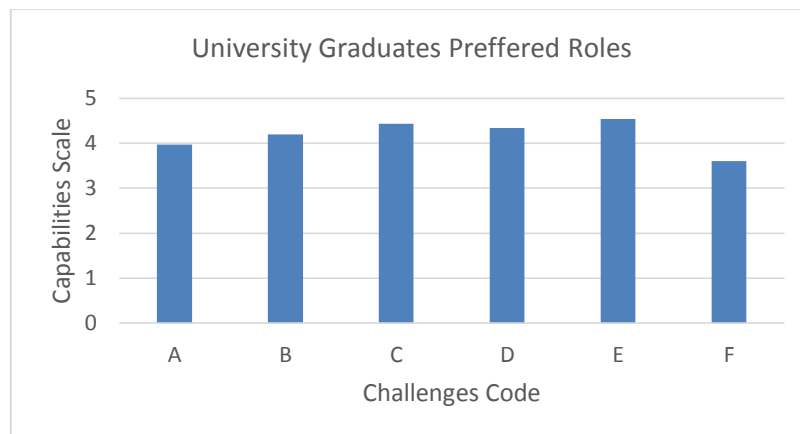
Picture 1. Challenges Faced by Oyster Farmers in Running The Business

Based on the graph, it can be seen that the most challenging things to the oyster farmers in running this business is They are challenged by the information system and technology that developed too fast and not getting used to it also how to promote and manage the sales.

However, even though there are some challenges that need to be tackled down in the perspective of the oyster farmers, there are also some of the strength of these farmers such as, they are as a provider of raw materials and can be invited to study together under the guidance of graduates who have a better understanding of the conditions of the market environment. They also make the taste as the value of the product. The value of the product is the sincerity of mothers to improve the welfare of their lives to be able to send their children to school. Because this product is one of the products proposed as a form of a fostered village, in the beginning, adding a structured party to run this business continuously and is the best solution.

#### University Graduates Perspectives

As for in this global era the competition to get a job requires a long process, the university graduates claim that it is difficult to find ideas to build a business from scratch, creating the concept of product innovation cannot be done by individuals. They claim to need a platform to be able to work. Being an entrepreneur by starting a start-up requires a large amount of capital so they have enough capital plus most university graduates have less experience in opening a business. Based on the results of the interview, respondents claimed to be interested in becoming part of the Oyster Crackers SMEs, but they want to be placed in their field of expertise where they need a good leader. To be a part of the business that is to be an entrepreneur can be formed from university graduates by providing many focus group discussions. Based on the research results, the percentage of fields that can be covered by university graduates in facing Industry 4.0 challenges is as follows.



Picture 2. University Graduates Preferred Sectors in Industry

Based on the graph, it can be seen that any challenges that faced by the oyster farmers in running this industry are more likely to be covered by the university graduates because those things are related to what the university graduate had been taught from college. The most dominant roles for university graduates in this business is the ability to use a smartphone/computer (technology-based devices). In this era, every individual tend to be depending to their smartphone and computer, because in college they used to use it as their daily basic needs, meanwhile we see that this is the challenges for oyster farmers in running the business because they are not used to use it, meanwhile in a business the data should be integrated to the technology as it basic needs. The next dominant thing is Promotion and marketing, university graduates believe that in

business they can participate actively in promoting and marketing the product as in this era people used to use social media and e-commerce. So the marketing promotion can be easily covered by the university graduates in this business.

### ***Both Parties Proposed Solution***

Based on the research it can be seen that the challenges faced by the oyster farmers in running this business are more likely covered and need the role of the university graduates. The challenges related to the unprepared oyster farmers to industry 4.0 challenges shows that it is needed the parties that understand and capable of facing these challenges. The solution offered is by having collaboration between the oyster farmers and university graduates. This can be achieved by making clear initial planning of the respective roles of both parties. Also, government support is needed to run a local business where oysters are one of the main commodities of Alue Naga Banda Aceh village and these oyster cracker products have high value in the community and can be made as souvenirs. Based on the results of research the role of oyster fishermen mothers can dominate the production section and university graduates dominate the business management section. Especially in managing industry 4.0 based marketing, packaging design and information systems.

### **CONCLUSION**

Based on the results of discussions with the oyster farmers and university graduates, it can be concluded that both parties are confident that they can work together in this business. Oyster farmers can help actively in the production process and in providing raw materials, then the supply chain can then be managed well by university graduates where the process already use information systems, technology and the use of electronic devices. However, both parties must link with each other, the oyster farmers can also learn from the university so that collaboration is created in a comfortable and safe business. The concern is if there is one party that dominates, so to support this, transparency should be an important thing between both parties. This product is also expected to be a product and village of Alue Naga and then be sold by typical Aceh souvenirs. For this reason, small and medium businesses will need assistance from the local government. University graduates should also upgrade their knowledge related to Industry 4.0 Challenges, with that it is expected to be a sustainable business.

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