

Jebara Wood Carving In Industry 4.0 Era

Bambang Kartono¹, Widyastuti²

¹*ITK Binus Malang, Indonesia*

²*Universitas Negeri Makasar, Indonesia*

Keywords: Industry 4.0, wood carving, creative actors.

Abstract: Industrial development has now entered in a new era known as the Industry 4.0. This change certainly affects culture in global and local communities. One of them is the Jebara wood carving industry, where the interest of young carving artists towards Jebara wood carving art seems to be diminishing. This study wanted to find out how far the industrial revolution 4.0 had an influence on woodcarving industry players in Jebara so that effective solutions could be obtained to develop wood carving creations from the younger generation. The purpose of this study is to document and analyze the behavior of wood carving actors who have made use of technological advancements and automation as an effort to transform technology to improve the creation of quality carving works, both in terms of product distribution and aspects of production efficiency. This research critically contains the influence of Industry 4.0 trends on woodcarving industry players and how the attitudes and readiness of Jebara wood carving artists face the industrial era 4.0. The challenge of changing the Industry 4.0 towards wood carving creative actors is expected to be the answer and have an impact on the distribution chain of wood carving products and the quality of wood carving. In this study the methodology used was: literature study, field observations, interviews with Jebara carvings and Jebara carving documentation. The results of the study show that there are wood carving artists who use digital media to market wood carving in Jebara. In addition, this study also found two things that are quite important, how artists carve take a positive position in accepting the presence of renewable technology, so that carving actors also change in accordance with technological changes and developments in industry progress, and how the handwork skills that have been owned generation can be combined with the progress of automation

1 INTRODUCTION

Industrial development has now entered a new era known as the Industry 4.0. This era has an effect on cultural change in global and local communities. According to Minister of Industry Erlangga Hartarto in his remarks to Making Indonesia 4.0 (2018), the phenomenon of the Industry 4.0 for Indonesia is expected to provide an opportunity to revitalize the Indonesian manufacturing sector and become a way to accelerate the achievement of Indonesia's vision of becoming the world's ten largest economy. According to him until 2016, the manufacturing industry contributed 20% of Indonesia's GDP and opened more than 14 million jobs.

Furthermore it is said that to revitalize the manufacturing industry, Indonesia is committed to accelerating the implementation of Industry 4.0. This is expected to multiply labor productivity, so as to

increase competitiveness and lift the global export market share. With the existence of higher exports, it will automatically open up more jobs, so that domestic consumption becomes stronger and in turn Indonesia will be able to become one of the top 10 countries in the world economy. This is in line with what was stated by Hamdan (2018) which states that the Industrial Revolution 4.0 has an increasing influence on the economy. Various sectors open opportunities for entrepreneurship so that MSMEs are increasing rapidly. This then influences entrepreneurship so that the expected economic independence will be realized.

One of those who felt the change was the Jebara wood carving industry. Jebara is one of the regencies in Central Java which is located on the north coast of the island of Java. The land area of Jebara Regency is 1,004,132 km² with a coastline of 72 km. Jebara Regency consists of 14 sub-districts which are further

divided into 183 villages and 11 sub-districts. Jepara is known by the public as an area of wood carving industry. Communities in this area have long been known to have talents in the field of carving and make the skills they have as a source of living livelihoods (Kurniawan & Widayastuti, 2018).

The development of Jepara carving art cannot be separated from the role of workers (engravers). From the skilled hands of the engravers, various shapes and motifs can be realized. Jepara Carving as a carving art product has spread in various regions and the world (Alamsyah, 2018). It's just that at this time the children and young generation of Jepara are not very interested in carving. Not only school children, but the younger generation also does not want to learn carving. This is certainly very concerning for the survival of Jepara carving arts (Maswan, 2014).

Industry 4.0 has been regarded as a new industrial era so that this study wants to find out how far the industrial revolution era 4.0 has impacted creative industries of wood carving in Jepara so that effective solutions can be obtained for the development of young wood carving creations. The purpose of this study is to document and analyze the behavior of wood carving actors who have adopted industry 4.0 and utilize technological advances and automation as an effort to transform technology to improve the creation of quality carving works from aspects of product distribution and aspects of production efficiency.

2 RESEARCH METHOD

This study was conducted in the Jepara Woodcraft Industry. In this study the methodology used was: literature study, field observations, interviews with Jepara carvings and Jepara carving documentation. The challenge of changing the industrial era 4.0 towards wood carving creative actors is expected to provide answers and understand the impact on the distribution chain of wood carving products and the quality of wood carving. The object and design of Jepara wood carving was studied to understand the extent of industrial adoption 4.0 in terms of production, design, and marketing aspects. A comparison of the use of technology in wood products currently produced by wood craftsmen to study the production of new patterns and to understand the new ways of marketing Jepara

industrial wood handicraft products. In addition, the perception of wood carvers about the presence of industrial era 4.0 is related to the adequacy of income from craft activities. In-depth interviews were taken to understand the views of the engravers so that they would obtain a description of the motivation of the carvers to develop the sustainability of jepara carving handicraft products.

3 RESULT AND DISCUSSION

Industry 4.0 is considered as the latest stage of the development of the industrial revolution which has had a lot of influence on changing patterns of industrial production in many countries. Rapid technological development and supported by the demands of the industry to be able to reduce high labor costs made the concept of Industry 4.0 related to aspects of industrial production patterns, including manufacturing, production distribution, business models, products and product services. Nevertheless, the results of observations in the field and the results of interviews with the Jepara carving industry found that the application of technology was still not widely used in the production of Jepara carving crafts. Although there are already some artisans who use laser technology to do cutting in making their work, this is only used by a small number of artisans. This is because not all craftsmen have the ability to utilize renewable technology. In addition, there are still many artisans who have traditional thinking concepts and are less willing to open themselves to technological advancements.

Engravers who have made use of technological advances in making their works include Jainuddin, who is from the village of Mantingan. Jainuddin, utilizing technology in the production process of his work mainly in laser cut. In addition, Jainuddin also uses technology to market his work. According to him, the most trendy market demand today is custom wedding accessories, ranging from dowry boxes, classic or digital albums and wedding souvenirs in the form of key chains. As for the foreign market share according to Jainuddin, the current trend is for kitchen ware mainly for restaurants and cafes. In addition, Jainudin uses technology that is still limited to production which has small dimensions.

The results of interviews with Kandik from Sukodono Hamlet also found that the application of industry-

based 4.0 technology concepts must have a positive and negative impact depending on the application. According to him, even though the technology has been used in making engraving products, it still needs manual engraving, so it must be combined between technology and manual.

The progress of a nation's civilization in this case changes the concept of developing a technology-based industry as much as possible, indeed it must be in line with the development of its human character. This is in accordance with what was stated by Suwardana (2017) who stated that the industrial revolution which prioritizes the value of the economic growth of the community through empowerment will be able to build harmony and synergy cooperation in order to develop the economy of the community. This is in line with the opinion of Boourdeou (Suwardana, 2017) which states that economic capital is not capital of all capital. But building the mental community is an important economic potential in the social structure, so that it can be used as a basis for moving the industry's progress in a beneficial direction. Industry 4.0 is also expected to be able to help in our daily lives and produce work decisions in a more appropriate industry. Currently industry 4.0 has changed many aspects of the economy, work, and lifestyle in society. The principle of work is a combination of physical technology and digital technology through analysis, artificial intelligence, cognitive technology, and the internet of think.

The results of the interview also found that some of the other engravers also seemed to take advantage of technological advancements, except that they were still limited to marketing their work. Engravers who use social media in marketing their works include Yanto and Roni. Both of these engravers basically accept the presence of technology, only in the production process they still rely on manual processes. Nevertheless, they use technology by marketing their work through online business on social media. In addition, according to Roni, the use of social media to showcase and market the results of his work is also useful to find out consumer tastes about the product so that it is expected to be able to encourage him to be more creative in making carved products and designs.

Furthermore, Roni said that the value of the work also depends on the exclusivity of a work. The manual

touch of the engraver makes a work look smooth and rough, it looks detailed details and especially if the product produced is limited in number, of course it is the main feature of the exclusivity of a product. This is also one of the reasons why the carving industry players seem less willing to take advantage of industry 4.0 technological advances in making their engraving products. Even so, it must be admitted that the manufacture of products manually will certainly make the price of goods higher because it will take a lot of time in the process, so it seems the price given is also less competitive than if the product is made by machinery at the factory.

Another thing that needs to be considered is the sustainability of Jepara carving handicraft production, considering that the main production material is wood, so the impact on the environment must be considered, especially on the availability of raw materials. So it is also necessary to consider the use of production waste in order to become a product that can also be used.





Figure 1: Wood carving products in Jepara that adopt technology laser cut production pattern (photo source Jainudin)



Figure 2: Jepara wood carving products that utilize Sosmedia Facebook and online media for its marketing strategy (Source of Facebook: Yanto)

4 CONCLUSION

The findings of the study indicate that the utilization of the application of Industry 4.0 of Jepara industrial wood carving products has not been widely adopted in production and marketing. In the production pattern, small-scale production repetition jobs see less potential in applying Industrial 4.0 technology in manufacturing logistics, while jobs with large dimensions such as furniture manufacturing have not seen a higher potential for use.

The results of the study also showed that the Jepara wood carving industry began to adapt to the industrial era 4.0. The process of making wood carving products that are considered too slow and lack of product innovation makes the need for new approaches to accelerate the process of making wood carving products, optimize product development to production and ensure competitive production costs.

The challenge is to find the right balance between optimal quality standards, the ability to deliver products quickly, and competitive pricing strategies.

The sustainability of Jepara carving handicraft production also requires sufficient material reserves and causes significant waste. So it is necessary to think of a strategy so that existing production waste can also be used optimally.

REFERENCES

- Alamsyah (2018) Potret Pekerja Kerajinan Seni Ukir Relief Jepara. *Endogami: Jurnal Ilmiah Kajian Antropologi* Vol. 2 No. 1 : Desember 2018 E-ISSN : 2599-1078
- Alexandre B., Salguero J., Peralta-Alvarez M., (2017) Application of Industry 4.0 technologies to the design and manufacturing of handicraft products. *Dyna*. 92(4) 435-441
- Bell E, Mangia G, Taylor S, Toraldo M (2018) *The Organization of Craft Work: Identities, Meanings and Materiality*. pp. 1-278 Published by Taylor and Francis Inc.
- Davies R (2015) *Industry 4.0. Digitalisation for productivity and growth*. 10
- Hamdan Hamdan (2018) Industry 4.0: Pengaruh Revolusi Industri Pada Kewirausahaan Demi Kemandirian Ekonomi. *Jurnal NUSAMBA* Vol 3 No 2. <http://ojs.unpkediri.ac.id/index.php/manajemen/article/view/12142>
- Suwardana, H., (2017). Revolusi Industri 4. 0 Berbasis Revolusi Mental. *JATI UNIK*, Vol.1, No.2, Hal. 102-110 ISSN : 2597-6257 (Print) ISSN : 2597-7946 (Online)
- Kurniawan, BK & Widyastuti (2018). Jepara, ukiran, dan perubahan jaman. *Productum: Jurnal Desain Produk (Pengetahuan dan Perancangan Produk)* Vol 3 No 3 Januari-Juni 2018 91-94 ISSN 2477-7900 (printed) | ISSN 2579-7328 (online)
- Martin (2017) Industry 4.0: Definition, Design Principles, Challenges, and the Future. *CLEVERISM*
- Mashdurohatun A., Ali Mansyur M., (2017) Product capabilities dynamic on industrial design carved wood in small and medium enterprises (SMES) jepara furniture in promoting the protection of intellectual property rights. *International Journal of Applied Engineering Research*. 12(19) 8217-8226

- Maswan. 2014. Antisipasi Punahnya seni Ukir. <https://www.kompasiana.com/kompasiana.com.maswan/54f70e5da33311f42b8b465c/antisipasi-punahnya-seni-ukir>.
- Menteri Perindustrian. 2018. Making Indonesia 4.0. Kata Sambutan Oleh Airlangga Hartarto Menteri Perindustrian Republik Indonesia. https://puspiptek.ristekdikti.go.id/wp-content/uploads/2018/10/revolusi-industri-4.0_PIF-2018_2018-1.pdf
- Müller J. Buliga O., Voigt K. (2018) Fortune favors the prepared: How SMEs approach business model innovations in Industry 4.0. *Technological Forecasting and Social Change*. 132 (3). 2-17
- UT Sulistyorini 2016. http://repository.uksw.edu/bitstream/123456789/7059/4/D_902006005_BAB%20IV.pdf
- Setiawan, A. & Sulaiman, AM. 2016. Pengembangan Desain “Digi-Motif” Untuk Aktualisasi Identitas Jebara Sebagai Kota Ukir. Makalah disampaikan pada Seminar dan Pameran Nasional hasil Penelitian dan Pengabdian Masyarakat “Seni Teknologi dan Masyarakat” 24 November 2016 di Institut Seni Indonesia Surakarta. https://www.researchgate.net/publication/311304019_PENGEMBANGAN_DESAIN_DIGI-MOTIF_UNTUK_AKTUALISASI_IDENTITAS_JEPARA_SEBAGAI_KOTA_UKIR/citation/download
- Triyana N. (tt) Galery seni ukir di jebara. <https://dspace.uui.ac.id/bitstream/handle/123456789/2625/05.1%20bab%201.pdf?sequence=5&isAllowed=y>
- Zezulka F., Marcon P., Vesely I., (2016) *Industry 4.0 – An Introduction in the phenomenon*. IFAC-Papers OnLine. Published by Elsevier B.V. 49(25) 8-12