



Journal of STI Policy and Management

Publication details, including instructions for authors and subscription information: <http://www.stipmjournal.org/>

Knowledge Accumulation-Based Entrepreneurship (KABE) in the Creative Industry: A Case Study of Woodwork Firms in Indonesia

Hadi Kardoyo, Setiowiji Handoyo, Anugerah Yuka Asmara

Research Center for Development of Science & Technology, Indonesian Institute of Sciences

Version of record first published: 15 December 2018

To cite this article: Kardoyo, H., Handoyo, S., and Asmara, A.Y. (2018). Knowledge Accumulation-Based Entrepreneurship (KABE) in the Creative Industry: A Case Study of Woodwork Firms in Indonesia. *Journal of STI Policy and Management*, 3(2), 161–173

To link to this article: <http://dx.doi.org/10.14203/STIPM.2017.149>

ISSN 2540-9786 (Print); ISSN 2502-5996 (online)




Accreditation Number: 21/E/KPT/2018

Full terms and conditions of use: <https://creativecommons.org/licenses/by-nc-sa/4.0/>

You are free to:

- Share : copy and redistribute the material in any medium or format
- Adapt : remix, transform, and build upon the material
- The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

-  Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
-  NonCommercial — You may not use the material for commercial purposes.
-  ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original.

No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

Notices:

- You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation.
- No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material.
- If you copy the dataset merely to extract the uncopyrightable data elements would not need permission to do so. However, if you republish the full dataset or using the copyrightable data layers require a permission from PAPPITEK-LIPI.

**JOURNAL OF SCIENCE, TECHNOLOGY, AND INNOVATION
POLICY AND MANAGEMENT (STIPM JOURNAL),
Volume 03, Number 02, December 2018**

FOREWORD by EDITOR-in-CHIEF

We are very pleased to inform the readers that *Journal of Science, Technology, & Innovation Policy and Management* (STIPM Journal) Vol. 3, No. 2, December 2018 is now ready for public reading and views. STIPM Journal is an online research journal, managed by the Center for Science and Technology Development Studies, Indonesian Institute of Sciences (PAPPIPTEK-LIPI).

This journal in fact provides scientific information needed mostly by research scholars. As a peer reviewed journal, STIPM provides free public access to all articles. Two issues, namely scientific review on variables and dimensions of national innovation capability, as well as research findings on development and adoption of science, technology, and innovation policy and management from Japan and Indonesia, are presented.

The first article “Internal Innovation Capacity and External Linkages in Firms of ASEAN Economies Focusing on Endogeneity” is composed by **Masaru OGAWA et al.** This research article examines the role of internal innovation capacity, which includes technological level, organizational learning, and human resources on innovation. The second research article entitled “Drivers of Innovation without Formal R&D: Selected Cases of Indonesian Firms”. This article is presented by **Erman AMINULLAH et al.** The objective of this research study is to obtain a deep understanding about “why and how” firms engaging in innovation without formal R&D, through deep analysis of three cases of firms in machinery and food processing sectors.

Uruqul Nadhif DZAKIY presents an article entitled “Technology-based Start-up: A Formula to become Sustainable Company in Indonesia, Lessons-learned from UAVINDO Nusantara”. UAVINDO is a sample of technology-based company in Indonesia which has the characteristics of sustainable company. The fourth article entitled “Development Strategy of National Microsatellite Industry: Case Study of Indonesia”, is presented by **Chusnul Tri JUDIANTO et al.** By applying SWOT and Quantitative Strategic Planning Matrix (QSPM) methods, this research identifies and analyzes the alternative strategy from external and internal factors and selects the appropriate and precise strategy for developing the microsatellite industry.

Hadi KARDOYO et al. present an article entitled “Knowledge Accumulation-based Entrepreneurship in the Creative Industry: A Case Study of Woodwork Firms in Indonesia.” This article describes the activities of knowledge-entrepreneurship in four wood craft firms, namely Radio Magno, Stranough Guitar Technologi, Secco Guitar, and Matoa Watch, and also shows some lessons from Knowledge Intensive Entrepreneur (KIE). The last article composed by **Ahmad Dading GUNADI et al.** presents a “Scientific Review on National Capability Variables and Dimensions.” This paper analyses the dimensions and variables of National Innovation Capability through a system approach that includes three sub-systems, namely Input, Process, and Output.

After indexing by Google Scholar, ISJD and IPI, STIPM Journal is now indexed with DOAJ, BASE, and OCLC World Cat. This has made the journal's dissemination broader. We would like to express our immense gratitude to our international editorial board members, reviewers and authors for their contribution to this issue. We hope this publication will prove useful for readers and could contribute to the enhancement of science, technology and innovation initiatives. We expect that STIPM will always provide a higher scientific platform for authors and readers, with a comprehensive overview of the most recent STI Policy and Management research and development at the national, regional dan international levels. Finally, wishing you a *HAPPY NEW YEAR 2019. May your New Year be filled with great achievements, good health, peace, happiness, and joy.*

Jakarta, December 2018

Editor-In-Chief

JOURNAL OF STI POLICY AND MANAGEMENT

Volume 3, Number 2, December 2018

LIST OF CONTENTS

Internal Innovation Capacity and External Linkages in FIRMS of ASEAN Economies Focusing on Endogeneity	
Masaru Ogawa, Yasuhi Ueki, Hiroki Idota, Teruyuki Bunno, and Masatsugu Tsuji	97–117
Drivers of Innovation Without Formal R&D: Selected cases of Indonesian firms	
Erman Aminullah, Trina Fizzanty, Qinan M.B. Soesanto	119–136
Technology-Based Startup: A Formula to Become Sustainable Company in Indonesia a Case Study from UAVINDO Nusantara	
Uruqul Nadhif Dzakiy	137–144
Development Strategy of National Microsatellite Industry: Case Study of Indonesia	
Chusnul Tri Judianto, Harianto, and Agus Maulana	145–159
Knowledge Accumulation-Based Entrepreneurship (KABE) in the Creative Industry: A Case Study of Woodwork Firms in Indonesia	
Hadi Kardoyo, Setiowiji Handoyo, and Anugerah Yuka Asmara	161–173
National Innovation Capability Variables and Dimensions	
Ahmad Dading Gunadi, Yandra Arkeman, Rizal Syarief Siaiful Nazli, Teguh Rahardjo, and Aulijati Wachjudiningsih	175–188



Knowledge Accumulation-Based Entrepreneurship (KABE) in the Creative Industry: A Case Study of Woodwork Firms in Indonesia

Hadi Kardoyo ^{a,*}, Setiowiji Handoyo ^a, Anugerah Yuka Asmara^a

^a Center for S&T Development Studies, Indonesian Institute of Sciences

ARTICLE INFO

Article History:

Received : 06 November 2018

Revised : 07 December 2018

Accepted : 09 December 2018

Available online : 15 December 2018

Keywords:

Knowledge accumulation-based entrepreneurship

Creative industries

Learning activities

Innovation activities.

ABSTRACT

This article describes the activities of knowledge accumulation-based entrepreneurship (KABE) in four wood craft firms in Indonesia, namely Radio Magno, Stranough Guitar Technologi, Secco Guitar, and Matoa Watch. The products of the four wood craft firms are able to compete and have market share for both domestic and foreign. This article shows some lessons from KABE: 1) educational background, knowledge and experience play a significant role in supporting KABE; 2) knowledge-based and learning activities support the ability of four creative wood craft firms in enhancing innovation and product development; 3) the idea, product concept and innovation have become important aspects in supporting the ability of the four wood craft firms in their strategies to enter the market and create market segment for their products; 4) ecosystems and cultural aspects are considered as important aspects in supporting the growth of creative industries. This article, accordingly, is convinced that human resources, learning activities and knowledge accumulation are important aspects for innovation and promotion of entrepreneurship in the creative industries.

©2018 PAPPITEK-LIPI All rights reserved

I. INTRODUCTION

The creative industry, a form of new industrial activity in tertiary sector, has recently become an important sector in modern economy (van der Pol, 2010). Creative industry contributes to economic growth and employment, and represents the differentiation of economic activity based on cultural identity.

UNCTAD (2008) classified creative industries into four broad groups, namely heritage, arts, media, and functional creations. This clas-

sification shows subsector range from upstream activities with more traditional (heritage, arts) to downstream activities (media, functional creations) with more technological contents and closer to the market. Functional crafts, accordingly, became a subset of more modern forms of crafts with particular use.

Recently, attention has been paid to the significance of creative industries in the economy. Knowledge and technology advancement have been contributing to the growth of new forms and varieties of creative services and products. In relation to the significance of knowledge and human capital, Protogerou, Kontolaimou, and

* Corresponding Author. +62813-82683597

E-mail: hadikardoyo@gmail.com

Caloghirou (2017) mentioned that the human capital of the founders as well as the specific firms' characteristics play a significant role in the innovative activity of firms in the creative industries. Similarly, Lassen, McKelvey, and Ljungberg (2018) proved a higher level of knowledge intensity from knowledge intensive entrepreneurship (KIE) firms in creative industries, with higher educational attainment of both founders and employees.

In relation to the forms of innovation of creative industries, Verganti (2009) stated that design-driven innovation (DDI) potentially develop a radically new meaning to a product. A study conducted by Kembaren, Simatupang, Larso, and Wiyancoko (2014) showed that DDI process on five designpreneurs is by delivering a new meaning of their products and actively immerse in a design discourse. This article, accordingly, focuses on entrepreneurial activities based on knowledge accumulation-based innovation of the firms in creative industries.

The linkage between creative industries and the differentiation of economic activity is based on cultural identity. This represents the magnitude of opportunities for the emergence of new types of economic activities within the framework of knowledge-based economy (KBE). The characteristics of creative industry also provides opportunities for the growth of entrepreneurship in the economy. Entrepreneurship in the creative industries has the characteristic of knowledge accumulation-based entrepreneurship (KABE) as it is based on the capacity of knowledge owned by individuals, which has been acquired through learning from formal education, learning by interacting with creative industries environment and learning by doing in workplaces. Creativity, furthermore, can be realized in various forms of product innovation in accordance with the characteristics of the creative industries.

More specific to Indonesian creative industries, sectoral development priorities have been set in promoting the growth of creative industries. Strategies and targets have been set to encourage the development of creative industries sub-sectors that are potential in

- 1) Generating economic growth
- 2) Contributing to employment
- 3) Increasing potential for export growth.

The Government of Indonesia focuses on six sub sectors that are potential to contributing to economic growth, namely

- 1) Movies, animations and videos
- 2) Application and games developer
- 3) Music
- 4) Fashion
- 5) Crafts
- 6) Culinary

In relation to the significance of these sub-sectors, this article will examine knowledge and innovation which are critical in encouraging entrepreneurship activities in the creative industries.

In relation to the role of science and technology, this article reveals that aspects of science, technology and innovation constitute important parts in supporting economic agents to enter into industrial activities. This article illustrates the way aspects of science, technology and innovation play a role and become an inherent part of KABE activities in the creative industries. Related to the importance of science and technology, it is necessary to study "how KABE plays a role in supporting the growth of entrepreneurship in the creative industries".

II. ANALYTICAL FRAMEWORK

Innovation activities describe the activities of economic agents in creating new products and generating economic value. Innovation activities developed in the market are related to the work of innovation system. Innovation system (Lundvall, 1992; Malerba, 2002) refers to the activity of the main elements of the innovation system, the role of each element, and interaction between those elements. In addition, Nelson (1993) stated that the innovation system refers to the existence of innovation process in innovation system itself. This innovation system describes agents and institutions (rule of the game), as well as form of interaction and activity that affect the form of activity, types and performance of innovation.

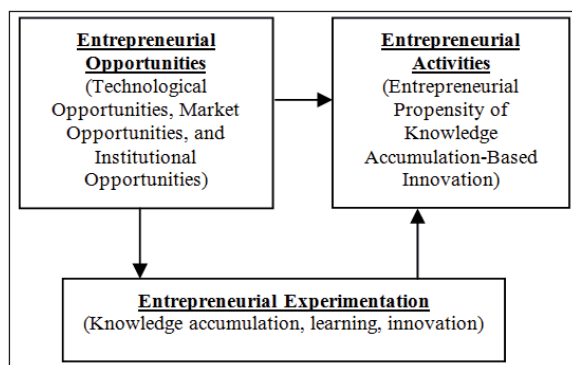
Literatures on entrepreneurship show that entrepreneurship activities become an

important part in supporting the work of innovation system. Schumpeter (1942), for example, stated that entrepreneurship is not only creating something new, but also involving innovation. This is a different view from entrepreneurship according to Kirzner (1973), which stated that the entrepreneur is as an arbitrator. Entrepreneurs, according to Kirzner, are economic actors who perform activities which meet market needs by utilizing production activities.

Radosevic, Yoruk, Edquist, and Zabala (2012), described entrepreneurship from two viewpoints: entrepreneurship as a 1) micro phenomenon and 2) macro phenomenon. This article accordingly considers entrepreneurship from the micro aspect by putting the activities of an entrepreneur to recognize opportunities and ideas, to combine activities in realizing opportunities towards economic activities. This perspective of entrepreneurship is closely related to the view of entrepreneurs as economic agents who take opportunities for economic value.

The perspective of entrepreneurship as a macro phenomenon describes entrepreneurship activities which rely on the activity of innovation system. However, in terms of creative industries, entrepreneurship is rather more knowledge accumulation which emphasizes the development of new activities based on the utilisation of knowledge and intellectual resources and by involving interaction with ecosystem of creative industries.

This article proposes KABE framework in viewing entrepreneurial activities in creative industries such as in functional craft subsector.



Source: modified from Radosevic et al. (2012)

Figure 1. Entrepreneurship View of Creative Industries

The nature of creative industries differs from hi-tech sectors with knowledge intensive and relies on massive R&D activities. Creative industries sectors are those which have their origin in individual creativity, skills and talents. Creativity, knowledge and learning become fundamental for the entrepreneurs in these sectors. In relation to innovation and entrepreneurship, Stoneman (2010) stated that there are three broad types of innovation in creative industries, namely

- 1) Technology innovation
- 2) Business model innovation
- 3) Creative ('aesthetic' or 'soft') innovation

More specific to soft innovation, Stoneman (2010) defined soft innovation as that of which reflects changes of an aesthetic nature of products. Human capital, knowledge capacity and environment accordingly, become prime movers of innovation and entrepreneurship in creative industries. Mooney (1963) convinced that environment (creative environments; where creation occurs), product (creative products), process (creative process) and person (creative person) ascertain creativity of individuals are being used in order to meet their expectations.

III. METHODOLOGY

This study utilized a qualitative approach by doing case studies on creative industries firms. Data and information were collected and analyzed by using KABE framework. This article combined aspects of KIE (Radosevic et al, 2012) and KABE that is plausible for assessing the phenomena of entrepreneurship in the creative industries.

Case studies conducted in four wood craft firms, which produce functional craft such as guitar and wooden watch. Case selection is based on the characteristics of firms which perform DDI (Verganti, 2008):

- 1) Their product delivers a new meaning to the existing materials or products.
- 2) Their product is indigenous and has a unique position (brand identity) in the market.
- 3) Their product has already received some kind of awards or recognitions.

A qualitative interview utilized to conduct the interviews, as shown in Table 1.

Table 1.
Data Collection and Data Analysis

No	Data	Data Collection	Data Analysis
1	Entrepreneurial Activities		
	Creating and changing organization	A case study on four woodwork firms	Descriptive analysis
2	Technological Opportunities		
	Knowledge development; competence building; knowledge network	A case study on four woodwork firms	Descriptive analysis
3	Market Opportunities		
	Demand-side activities; market knowledge	A case study on four woodwork firms	Descriptive analysis
4	Institutional Opportunities		
	Regulatory environment; public support; ecosystem of creative industries	A case study On four woodwork firms	Descriptive analysis
5	Knowledge accumulation	A case study on four woodwork firms	Descriptive analysis
6	Learning	A case study on four woodwork firms	Descriptive analysis
7	Innovation; product aspects; product concepts	A case study on four woodwork firms	Descriptive analysis

Source: modified from Radosevic et al. (2012)

IV. RESULTS AND DISCUSSION

A. Entrepreneurial Activities

This section describes the activities of KABE of the wood-craft firms namely Radio Magno, Secco Guitar, Stranough Guitar and Matoa Watch. KABE are related to how they perceive and manifest entrepreneurial activity by referring to technology, market, institutional opportunities, environment, learning and knowledge accumulation and innovation for doing entrepreneurship in creative industries.

B. Elements of KABE

KABE refers to the three aspects of opportunities, namely technological, market and institutional opportunities. This section will examine how each of the actors raised the opportunities and manifested them in KABE activities.

4.1. Technological Opportunities

Technological opportunities emerge from capabilities owned by the entrepreneurs. Technological capabilities of an entrepreneur will create capabilities for doing production activity and market penetration. Related to the technological opportunities, this article shows two important

Tabel 2.
Profiles of Four Wooden Craft Firms

Firm	Owner	Educational Background	Product	Market
Piranti Works Studio	Singgih Susilo Kartono	Faculty Arts and Design, ITB	Radio Magno	Domestic and export
Secco Guitar	Yosefat Wenardi	Mechanical Engineering, ITB	Secco Guitar	Domestic and export
Matoa Watch	Lucky Dana Aria	Management- Widya Tama University	Matoa Watch	Domestic and export
Stranough Quitar Technology	Muhamad Satria Nugraha	Mechanical Engineering Institute Teknologi Nasional (ITENAS)	Lapstic Quitar Stranough Quitar The Tripper Quitar	Domestic and export

things related to the knowledge and activities of KABE.

In general, four wooden craft firms (Radio Magno, Secco Guitar, Stranough Guitar Technology, and Matoa Watch) possess knowledge and technological capacities. Knowledge and technological capacities, accordingly, become driving factors for the owners to conduct KABE activities. The experience of each actor also contributes to the activities of KABE conducted. Knowledge and technological capacities enable the owner to take advantage of emerging opportunities. Ideas and innovation activities, as well as challenges to create new product development, can be realized with the capacity of knowledge and technology owned by each actor.

In the case of Radio Magno, Matoa Watch, Secco Guitar, and Stranough Guitar Technology each of them has a similar pattern of entrepreneurial activities. Each of the owners has the capacity of knowledge and experience needed for their entrepreneurial activities. Matoa Watch has a slightly different pattern in which the owner collaborates with his colleague to engage in entrepreneurial activity. The owner performs himself as the manager who coordinates in doing

entrepreneurship. Two colleagues are empowered to support the design and technology utilization for the production activities.

Knowledge and KABE

Knowledge represents an accumulation of know-how that is generated from learning activities as well as from experiences. Educational background significantly contributes to developing the capacity of one's knowledge. In the case of Radio Magno, Secco Guitar, and Stranough Guitar, knowledge capacity of the owner has a complementary relationship with the KABE activities performed. Singgih S. Kartono, Yosifat Wenardi, and Muhamad Satria Nugraha have knowledge capacity obtained from their educational background and experiences. KABE undertaken represents the capability of the owners to utilize knowledge and technological capacities. Meanwhile, in the case of Matoa Watch, knowledge owned by the owner associated with the practice management in doing his KABE. Matoa Watch's owner, Lucky D. Aria, is able to practice management principles in supporting of his KABE. Collaboration becomes the main supporting factors in the KABE development.

Tabel 3.
Technological Opportunities

Radio Magno	Knowledge dan technological capabilities learned from educational background
Stranough Guitar Technology	Knowledge and technological capabilities based on educational background, learning and networking with communities
Secco Guitar	Knowledge and technological capabilities based on educational background; and working experiences
Matoa Watch	Knowledge based on educational background; technological capabilities by doing collaboration

Tabel 4.
Knowledge and KABE

Radio Magno	Educational background and product concept
Stranough Guitar Technology	Educational background, talent and product concept
Secco Guitar	Educational background, occupation background, musical talent
Matoa Watch	Educational background and collaboration

Table 5.
Knowledge Development and KABE

Radio Magno	Educational background and product concept
Stranough Guitar Technology	Educational background, learning activities in leveling up technological capacities and innovation
Secco Guitar	Educational background and product concept
Matoa Watch	Product concept and collaboration

Learning activity is needed in supporting KABE. This learning activity influences the emergence of KABE activities as well as in maintaining the existence and sustainability of KABE undertaken. KABE needs to respond the dynamics of industrial sector, market and economy in general. Knowledge and technological capabilities of all firms become foundation in supporting their successful business development.

The owner of Radio Magno has a strong concept of innovation and new product development. His educational background and experience in art and design provides technological opportunities to produce new products. The owner Radio Magno developed prototypes of Radio Magno as a project required for graduation of his study at ITB. Moreover, knowledge development activities are carried out through interaction between owners and the environment to support the design process and production activities. Singgih S. Kartono of Radio Magno conducts learning activities by applying the concept of flowing process and harmonizing the designing activities with economic, social and cultural dynamics.

Secco Guitar owner, Yosefat Wenardi, has knowledge and technology capacity based on his educational background. The owner graduated from mechanical engineering with major in acoustic technology. Moreover, the owner maintains learning and networking activities to improve his capacity in the customized guitar making. Learning activities are conducted by involving market dynamics and referring to the concepts and specifications of the guitar needed by the customer. Product concept and design are done by developing opportunities in the use of local materials. The owner also views Indonesian cultural diversity as a source that can be utilized to support KABE in creative industries.

The owner of Stranough Guitar Technology, Hanung, has knowledge and technological capaci-

ties in the process of making electric guitars. This ability is obtained from learning process both from his formal education and from his interaction with “luthiers” all around the world. Learning activities have been conducted by Hanung and all employees in developing portable electric guitar products. Interaction with customers also becomes a learning channel.

The founder of Matoa Watch, Lucky D. Aria has a knowledge capacity from his formal education. Knowledge development is carried out through a collaborative process with colleagues who have the knowledge and technology capacity needed to support his KABE activities. The learning process is conducted in the development of new products related to the production process, design, technological contents, material utilization and marketing strategies in the market.

4.2 Market Opportunities

Market opportunities define a particular opportunities that arise from the market aspects. Market structures and market characteristics affect the opportunities for the entrepreneurs to enter the industry. In relation to the KABE, market opportunities, technological capacity and innovation, capacitate the entrepreneur’s ability to enter and develop their business activities.

The structure of the electronics industry for radio products is generally dominated by multinational firms, such as Sony, JVC, Samsung, Panasonic, and others. Domestic producers such as Polytron, Akari and National have a small market share. Consequently, Singgih S. Kartono with Magno Radio should be able to enter the niche market. By doing this, Radio Magno sets strategies to develop classic wooden radio. Knowledge capacity and product concepts built by Singgih have been able to help create a segmented market for Magno radio.

Tabel 6.
Market Opportunities

Radio Magno	Segmented market; innovation in product meaning
Stranough Guitar Technology	Niche market; a concept of “down to earth” product
Secco Guitar	Segmented market; innovation in product meaning
Matoa Watch	Niche market; design-driven innovation

Similar to Singgih, Hanung with his Stranough Guitar has been able to make an entry into the industry by developing a new concept and product innovations. Market opportunities for new product development occur initially through a mechanism of interaction between producer and users. Hanung, previously, produced “Lapstic Guitar” for users and marketed in Europe. The Tripper Guitar is a brand that has been developed for domestic market. As a result, Hanung’s ability to meet the needs of the “niche market” has created new market opportunities.

Yosefat Wenardi with his customized guitar competed in the classic guitar market by bringing customized guitar products. His knowledge capacity on material, mechanical, and acoustic technology capacitates Yosefat Wenardi to produce superior product to penetrate the market.

Lucky D. Aria does the some efforts to enter high competitive wooden watch market. The owner of Matoa Watch develops a new brand “Nusantara”. In doing this, the owner of Matoa Watch utilizes local materials and designs. In addition, the owner sets marketing concept and strategy to be able to penetrate export market.

Innovation becomes an important part of KABE in creative industries. Magno Radio, for example, was developed by Singgih with a strong product concept of classical wooden radio. This has contributed to the Radio Magno ability to create segmented market. The tripper guitar was developed by Muhamad Satria Nugraha through innovation in the design and functionality. The

product concept developed is an electric guitar that can be played “*anytime and anywhere*”. This has become a new idea againts the use of electric guitars that are generally played in limited ways and by using amplifiers. The concept of product innovation in Stranough Guitar provides an opportunity for Stranough Guitar to compete in the market. Josepath Wenardi has made a customized guitar with fine design and acoustic quality. The concept of a customized guitar developed by Joseph Wenardi has been able to make Secco Guitar as one of the famous guitars in the market today. Meanwhile, Lucky D. Aria innovates a wooden watch by developing a brand image. Matoa Watch is an Indonesian wooden watch with high quality of local wood materials. The innovation concept of Matoa Watch has been put in marketing strategies by using after-sales service. This concept makes Matoa Watch has been able to compete in the wooden watch market.

Innovation, entrepreneurship and market

Technological capabilities and innovation are closely related to the KABE. Technological and innovation capabilities provide an opportunity for the actor to engage in entrepreneurship activities with the aim of manifesting ideas. The case of KABE on Magno Radio, Secco Guitar, Stranough Guitar and Matoa Watch has shown the pattern mentioned above. The owners started their business activities to manifest their expectation to be able to produce their own products. Cases of Radio Magno, Secco Guitar and Stranough Guitar

Table 7.
Market and Innovation Aspects

Radio Magno	Entry market by product-meaning improvement
Stranough Guitar Technology	Entry market with product innovation
Secco Guitar	Entry market with product-meaning improvement
Matoa Watch	Entry market with branding

Table 8.
Innovation and Market Development

Radio Magno	Innovasi in design an product meaning
Stranough Guitar Technology	Innovation in product features/ functionality
Secco Guitar	Innovation in product meaning
Matoa Watch	New product improvement

Table 9.
Economic and Market Policies on Entrepreneurship Activities

Radio Magno	Creative industry ecosystem
Stranough Guitar Technology	Market and industry ecosystem
Secco Guitar	Market and industry ecosystem
Matoa Watch	Market and industry ecosystem

have shown that the owners have knowledge capacity and technological capabilities that are appropriate to the KABE activities. The capacity of knowledge and technology has capacitated them to develop product concepts with potential for innovation. Entrepreneurship activities have met the expectations of all the above entrepreneurs in developing business activities in term of knowledge and technological capabilities for innovation. The implications of KABE of wooden craft firms above are related to their abilities to create their own market segments.

4.3 Institutional Opportunities/Creative Industries Ecosystem

In relation to the government development policies and programs, including legislation, economic policies, and institutional opportunities, to promote sectoral growth, including the creation of an environment that stimulate the growth of new business activities. These public support aspects give opportunities for the development of KABE.

Related to the case studies of the four wooden craft firms, Singgih S. Kartono of Radio Magno considers that government needs to focus on how to develop high value-added woodwork industries. This is contrasted with the current level of policies implementation related to potential resources and market opportunities that enable Indonesian woodwork industries to compete in the global market.

The founder of Stranough Guitar Technology, on the other hand, considers a positive impact from the dynamics of the development of the creative city in Bandung. The process of developing his entrepreneurship activities has been benefited from the ecosystem of creative industries in Bandung. Related to the learning activities, technological capacities development and

innovation, Radio Magno owners get a positive impact from Bandung society which is rich in human resources, educational levels and ecosystem dynamics of Bandung creative industries.

Similarly, the founder of Secco Guitar considers the existence of conducive climate for the development of creative industries in Bandung. Structure, culture and government policies have a positive effect on KABE development. The Bandung societies are rich in potential for learning activities for the development of the creative industries.

The founder of Matoa Watch considers the existence of a positive influence on the dynamics of the Bandung creative city. The growth of service sectors and tourism influence a conducive climate for doing business. Located near the capital city of Jakarta, Bandung is relatively rich with sources of growth related to innovation system. The growth of tertiary sectors in Bandung also affects learning activities and interactions among sources of knowledge.

Economic and market policies on entrepreneurship activities

All wooden craft makers perceived that the government lacks in knowledge and understanding on how to support the creative industries. In terms of legislation, the government policy is considered lacking of coordination in its formulation, implementation and evaluation. The government policy on the woodwork industry stipulates Indonesia's timber legality assurance system (*standard verifikasi legalitas kayu* or SVLK). For example, SVLK does not regulate the development of woodwork industries as it does not cover an issue on how to maintain the sustainability material supply needed by micro-economic sectors. Consequently, woodwork firms are negatively affected by this regulation.

Woodwork firms are required to comply with regulations without giving them options on how they obtain raw materials in accordance with this regulation.

KABE activities run by four craft industry actors above illustrate the linkage of innovation-based entrepreneurship in creative industries. The educational background of each actor represents how the capacity of knowledge, science and technology constitute important factors of their activities. Four KAB entrepreneurs achieve their knowledge capacity through formal education. The case studies undertaken indicate the role of education as an important factor in generating human resources in the creative industries.

The case studies show that government policies are important in maintaining the sustainability KABE in creative industries. Four KAB entrepreneurs (Magno Radio, Secco Guitar, Stranough Guitar, and Matoa Watch) represent the outcomes of the work of creative industries ecosystem. The owners of four firms were educated in the education system in Bandung. They recognized the rapidly growing creative industries and positively impacted well-built creative industries ecosystem in Bandung. At present, the Bandung Municipality is developing a focus on development “design” as fundamental to develop Bandung’s creative industries.

4.4 Complementarity among aspects of KABE (market opportunities, technological opportunities, institutional opportunities)

Case studies of four KAB entrepreneurs (Radio Magno, Secco Guitar, Stranough Guitar, and Matoa Watch) illustrate that KABE can be undertaken by individuals by combining the utilization of opportunities: market, technological and institutional. In the case of Radio Magno, Secco Guitar and Stranough Guitar, these owners possess knowledge and technological capacity based on their educational backgrounds and experiences. Knowledge and technological capacities become the main aspect in addressing the need for innovation to be able to enter the industries. Learning and knowledge accumulation activities are utilized by entrepreneurs to support their KABE. The case of “Matoa Watch” is different, as the

owner collaborates with his colleagues to support his KABE.

The four entrepreneurs are creative individuals with ideas to create competitive products. Four entrepreneurs have the same patterns by creating a particular product that is perceived to be able to enter the niche market. Strategies are set by creating strong product concept, design, functionality and uniqueness that distinguished them from similar products in the market. So far, this strategy provides the ability of their products to compete in the market.

The four entrepreneurs considered that institutional aspects, such as government policies in supporting the development of the creative industry were not yet optimal. The government does not have a focus related to the public support, especially related to their activities. Related to the institutional aspects, there are still many obstacles faced by woodwork industry players such as Magno Radio, Secco Guitar, Stranough Guitar, and Matoa Watch. Regulations, such as SVLK and burdens downstream by increasing production costs also do not support this industry.

Regarding intellectual property rights (IPR) for creative industries, the four entrepreneurs protect their intellectual property by creating “*trademarks*” which are registered with the Director General of IPR. One of the obstacles is the phenomenon of plagiarism. As illustration, Singgih S. Kartono with Magno Radio faced this problem. The similar products of classical wooden-radio circulated in the domestic market. Singgih, accordingly, views this phenomenon as government responsibility to enforce the law. On the other hand, Singgih considers that problem solving does not need to be done through “punishment” but by “fostering” regulation implementation. The alleged are individuals who also have technological and production capabilities, but their creativity needs to be directed in the proper way. In relation to the concept of KABE, the entrepreneurs are able to combine opportunities, learning activities and knowledge accumulation for KABE in creative industries.

4.5 Ecosystems and Cultural Aspects in Supporting KABE in Creative Industries

Ecosystems and cultural aspects have become important parts needed in the development of creative industries. The character of the creative industries, which are different from the manufacturing industries, is much influenced by the economic, social, and cultural values of the societies. The framework for creative industries development is now starting to shift from a policy of encouraging conventional creative industries towards a policy framework to create ecology that is needed by creative industries to grow (UNCTAD, 2008).

Singgih S. Kartono founded “Piranti Works” in Kandangan Village, Temanggung, Central Java. The rural area is purposely chosen by Singgih to support design and production process. The concept of *modern craft* is set by the owner and by getting closer to the raw material. In addition, the rural atmosphere is chosen by Singgih to support its activities in the process of design and production that require precision to produce craft products. Human resources who work in “Piranti Works” are supplied from the surrounding area. The owner develops a concept of village empowerment. In addition, Singgih develops nurseries for various tree species that is needed for the production process. This is done to preserve nature and to support sustainability of his business.

The presentation of case studies on the four creative industries of the woodwork firms as mentioned above illustrates that the KABE has an effect on the ability of each actor to compete and create market segment for their products. Knowledge, learning activities, technological capabilities and innovation, are keys for four craft-based creative entrepreneurs to conduct KABE in the creative industries. These entrepreneurs are able to create functional crafts with high economic value-added.

4.6 Lesson Learned: Radio Magno, Secco Guitar, Stranough Guitar and Matoa Watch

The four case studies conducted has given some lessons learned as follows.

4.6.1 Educational Background, knowledge and experience

Knowledge and innovation capacities are important aspects for the entrepreneurs in conducting KABE in the creative industries. The case study of Radio Magno, Secco Guitar, Stranough Guitar and Matoa show that educational background plays important role for their business activities. Knowledge gained from formal education and the experiences of the owners become a fundamental aspect in doing KABE. Each of the KAB entrepreneurs conduct activities in accordance with the knowledge gained from their formal education background.

4.6.2 Existing Knowledge and Learning Activities

Knowledge and learning activities are important aspects in supporting KABE in the creative industries. Knowledge capacity represents an accumulation of existing knowledge and the outcomes of the continuous learning process. Knowledge capacity is an important part for KAB entrepreneurs in the creative industries. The case studies of wooden craft entrepreneurs conduct learning activities to enhance knowledge capacity, science and technology, and innovation with the aim to maintain their capacities in dealing with economic dynamics. Learning activities are carried out to generate ideas and concepts for the new product development and the demands of innovation for sustainability of business activities. Learning activities for each actor are carried out in the area of value chain of doing business in creative industries. Singgih S. Kartono, for example, conducts learning activities to support the sustainability of his business. The concept of using wooden materials is set by creating *less material for more products*. Joseph Wenardi conducts learning activities to explore the potential of the local wooden materials to produce high quality products, design development, and acoustics of customized guitar produced. Hanung

conducts learning with a producer-buyer network and develops a concept of “a more down-to-earth guitar” products. Lucky D. Aria of Matoa Watch, conducts learning activities by involving a collaborative process to run his company activities. Product development and innovation are carried out for the use of local wood material and product development with strong character of the Indonesian nuances. The concept of product development and innovation are made to create environmental-friendly products.

4.7 Ideas, Strong Product Concepts and Innovations

The case studies conducted on Magno Radio, Secco Guitar, Stranough Guitar and Matoa Watch showed that each KAB entrepreneurs were individuals who were rich in ideas and creativities. Knowledge capacity and creativity spirit encouraged the entrepreneurs to develop business activities based on ideas in the creative industries. Singgih S. Kartono of Radio Magno had strong ideas and developed “modern craft” activities in rural area. As a result, Magno Radio was able to penetrate the domestic and export market.

Secco Guitar and Stranough Guitar had a similar pattern that the owners developed creative ideas for new market segments. The product concepts developed by the two entrepreneurs were conducted by creating product that was inherent in the character of each customer. Hanung innovated by developing “*The Tripper; Play the Guitar anytime any where*”. The portable electric guitar can be played without having to rely on electricity and the use of amplifiers. This kind of electric guitar could be played by only using a headset to avoid noise. Hanung maintains product development activities to prioritize a concept *guitar as part of everyday life*.

Meanwhile, Secco Guitar aims to create a high-end market segment with the concept of customed-classic guitar. Secco Guitar’s innovation was done by developing classic designs and using of the best domestic wooden materials to produce distinctive sound characters. As a result, Secco Guitar has been able to compete with other well-known classical guitar products.

Starting from a wooden watch gifted by his parents, Lucky D. Aria of Matoa Watch had the idea to create a similar product originally from Indonesia. His knowledge capacity in the field of management has encouraged Lucky D. Aria to collaborate with colleagues to design wooden watch made from local wooden materials. Matoa watch products have been developed with the concept of utilization of waste materials. Matoa Watch was created with an environmental-friendly and minimizing energy use. The use of local materials is one of the strategies to present Indonesian nuances. Market entry has been done with online marketing strategy through the internet and develops marketing outlets in the high market segment. Other marketing strategies include guarantee for after sales market with spare parts replacement. The packaging on the Matoa Watch is made from wooden container which is used as decoration. As a result, Matoa Watch has been able to penetrate and compete in the global market.

V. CONCLUSION

KABE represents development of entrepreneurial activity in the creative industries. Modern economies recognize science, technology and innovation aspects as sources of sustainable economic growth. Economic growth could even be associated with the ability of the economies to enhance innovation as a source of growth. Entrepreneurship in the context of modern economies has also progressed towards KABE which refers to the entrepreneurial activities based on the knowledge utilization of individual entrepreneurs. KABE refers to entrepreneurial activity that is supported by the capacity of knowledge, technology and innovation of the entrepreneurs.

Encouraging the growth of KABE needs to be done in all economic sectors. Creative industries grow from varieties of new business activities based on creativity. The concept of KABE should be developed to encourage the growth of creative industry subsectors. KABE in the wooden craft firms for example, reflects knowledge-based entrepreneurship in the creative industries.

The craft subsector is one of the four leading creative industries in Indonesia. The development

of the craft industries in Indonesia needs to be done by referring to the magnitude of Indonesia's potential of raw materials sources and cultural aspects that facilitate the development of wood craft industry. KABE becomes a concept that is in line with the direction of the future development of wooden craft industry in Indonesia. KABE in the wood craft industry will encourage the development of such industries that produce products, both art products and functional crafts with high economic-value added.

The case studies showed that the founders of the four wooden craft firms reflect KABE in the creative industries. Each of entrepreneurs performs entrepreneurial activities as illustrated in the KABE view. The manifestation of KABE is carried out by completing complementarity of all aspects of KABE.

Knowledge, technological capabilities and innovation are important parts of the success of KABE activities in the wooden craft creative industries. Knowledge capacity becomes a basis for their ability to develop ideas and creativities. Technological capabilities and learning activities carried out have an effect on supporting their ability to develop new products and innovations. Knowledge, learning and technological capabilities become major factors for their competitiveness in the industries, being able to enter and compete in the market

In relation to KABE, this article finds some important lessons as follows.

- 1) Educational background, knowledge, and experience of the founder play significant roles for the KAB entrepreneurs in doing business in the creative industries.
- 2) Existing knowledge and learning activities are carried out as part of the KABE.
- 3) Ideas, a strong product concept and innovation are important parts of entrepreneurs' competitiveness.
- 4) Ecosystems and cultural aspects are influential in creating the potential for the development of creative industries and in supporting the sustainability of the creative industries in the economy.

The learning points, as mentioned, contributed to the KABE. This article accordingly is convincing that KABE has become an important form of entrepreneurship in creative industries. The case study of wooden craft firms showed that human resources, knowledge and learning activities are crucial for promoting entrepreneurship in creative industries.

ACKNOWLEDGEMENT

We would like to thank PAPPITTEK-LIPI for funding this project that has been conducted in 2016.

REFERENCES

- Edquist, C. (1997). *Systems of innovation: System of innovation technologies, institutions, and organizations*. London: Pinter.
- Freeman, C. (1987). *Technology policy and economic performance: lessons from Japan*. London: Pinter Publisher.
- Freeman, C. (1995). The national system of innovation in historical perspective. *Journal of Economics*, 19, 5–24.
- Kirzner, M.I. (1973). *Competition and entrepreneurship*. Chicago and London: The University of Chicago Press.
- Kembaren, P., Simatupang, T.M, Larso, D., & Wiyancoko, D. (2014). *Design driven innovation practices in design-preneur led creative industry*. *Journal of Technology Management and Innovation*, 9(3), 91–105.
- Lassen, A. H, McKelvey, M. & Ljungberg, D. (2018). Knowledge-intensive entrepreneurship in manufacturing and creative industries: Same, same, but different. *Creativity and Innovation Management*, 27(3), 284–294.
- Lundvall, B.A. (1992). *National systems of innovation: Towards a theory of innovation and interactive learning*. London: Pinter Publishers.
- Malerba, F. (2002). Sectoral systems of innovation and production. *Research Policy*, 31, 247–264.
- Mooney, R. L. (1963). A conceptual model for integrating four approaches to the identification of creative talent. In C. W. Taylor, & F. Barron (Eds.), *Scientific creativity: Its recognition and development* (331–340). New York: John Wiley & Sons
- Nelson, R.R. (1993). *National innovation systems: A comparative analysis*. New York, NY: Oxford University Press.

- Protogerou, A., Kontolaimou, A., & Caloghirou, Y. (2017). Innovation in the European creative industries: A firm-level empirical approach. *Industry and Innovation*, 24(6), 587–612.
- Radosevic, S., Yoruk, E., Edquist, C., & Zabala, J.M. (2012). *Innovation systems and knowledge-intensive entrepreneurship: Analytical Framework and guidelines for case study research*. Lund: Circle, Lund University.
- Schumpeter, J.A. (1942). *Capitalism, socialism, and democracy*. New York: Harper and Brothers.
- Scottish Funding Council (2017). *Enhanced innovation support for creative industries*. (Final Report). Edinburgh: Scottish Funding Council.
- Stoneman, P. (2010). *Soft innovation economics, product aesthetics and the creative industries*. Oxford: Oxford University Press
- van der Pol, H. (2010). *Key role of cultural and creative industries in the economy*. Retrieved from <https://www.oecd.org/site/worldforum06/38703999.pdf>
- UNCTAD. (2008). *Creative economy report 2008: The challenge of assessing the creative economy towards informed policy-making*. Geneva: UNCTAD.
- Verganti, R. (2009). *Design driven innovation: Changing the rules of competition by radically innovating what things mean*. Boston: Harvard Business School Publishing.