

# Women Green Entrepreneurs Orientation in Relation with SMEs' Batik Performance Using Online Social Media

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**Abstract:** This study aims at extending research into an ecological aspect of women or female entrepreneurs in promoting their firm performance through online social media. It aims to examine how Micro, Small and Medium Enterprises (SMEs)' Green Batik women entrepreneurs are able to enhance their firm performance through online social media. The way they run their business is in accordance to the preservation of nature by means of natural dyes. The fabrication of Green Batik (Indonesian-waxed hand painting textile), as well as life cycle assessment, is considered as environmental-friendly entrepreneurship or green entrepreneurs. This study also explores the religious values as the all respondents embrace Islam by faith. Furthermore, the use of online social media is explored how it plays a role in promoting firm performance. The census approach of total respondents is withdrawn among 180 women entrepreneurs who practice green and clean production as well as life cycle assessment. This study took place in Pedan Klaten Central Java Indonesia in 2017.

**Keywords:** Women Green Entrepreneurs, Online Social Media, SMEs Performance

## 1. Introduction

This study discusses the role of women green entrepreneurs to promote their SMEs performance through online social media. Female or women entrepreneurs are associated with inequality and under-representation. Among 700 thousand Micro, Small and Medium Enterprises in Indonesia (MSMEs), women entrepreneurs have contributed 9.1 percent of the total Gross Domestic Product (GDP), it comprises half

of the total SMEs' GDP contribution to the country.

Green entrepreneurship is an entrepreneurship that has an orientation on environmental concerns; there are much different meaning such as eco-entrepreneurship, enviropreneurship, sustainable entrepreneurship (Hechavarría, 2015). Eco-preneurship integrates the conventional concept of entrepreneurial of market orientation and innovation and lead to the sustainable and ecology concepts. The research on green entrepreneurship has

advanced rapidly in the last decade. Furthermore, female green entrepreneurship is sturdily influenced by social and ecological forces (Cohen et al, 2008; Hechavarria, 2015). Research on green entrepreneurship stemmed from two decades ago, so far, the advancement of green entrepreneurship is still in progress and there is no widely-accepted definition of green entrepreneurship (Stal et al., 2014; Antolin-Lopez, 2014). In general, green entrepreneurship is stated as activities of venturing rooted in ecological awareness. The role of Small and Medium Enterprises on green entrepreneurship are emphasized by Indaco et al.,(2013); Pinske & Groot (2015). They find out that SMEs actively combine between entrepreneurial capability and sustainability.

The study of green entrepreneurship is empirically challenging to be developed further, so far, most of the previous studies utilized qualitative approach rather than quantitative approach with an inclination for case studies (Huggins, 2013; de Bruin & Lewis, 2015). Furthermore, Antolin-Lopez et al (2014) found out that there were less than ten quantitative studies to date and that addressed green entrepreneurship as the dependent variable. In the absence of the data availability, strong measurement techniques, green entrepreneurship study can be categorized in the preliminary stage of development.

Galkina & Hultman (2016), stated that green entrepreneurship is a promising study in as much its possibility to provide contributions both in theoretical and practices to transform in organizational, society and individual level particularly in synergizing between entrepreneurship and environment or ecology. Green entrepreneurship is not a cure-all of the environmental problems, however robust linkage amongst industry, government, local communities, and

organization is required to establish the research of green entrepreneurship.

### **1.1. Islamic Entrepreneurship**

Islamic entrepreneurship is the process of commencing a business firm to produce goods or service rendering that is halal for generating equitable profits. Islamic entrepreneurship does not include in those activities that fail to assure consumer social responsibility, ethical values, rights, and good business practices (Chowdhury, 2008; Hogue et al, 2014). Islamic entrepreneurs are people who manage and commence business according to Islamic guidelines. They cautiously forestall hoarding, improper treatment to their employees and unjust dealing with customers. The primary goal for Islamic entrepreneurs are not merely making a profit but more importantly, distributing social welfare, focussing on consumer satisfaction and protecting the national interest. In addition, Chowdhury, (2008); Hogue et al (2014) stated the traits of Islamic entrepreneurs can be elaborated as follows: Knowledge, initiative, risk-taking, customer orientation, strategic thinking, innovativeness, hardworking, halal earnings, honesty, and truthfulness.

### **1.2. Women Green Entrepreneurship**

In the context of female or women green entrepreneurship, Patterson et al (2012) combine their study on entrepreneurship masculinities dominance and femininities traits. Entrepreneurship is characterized by traits of hard, impersonal, objective, action oriented, analytical, aggressive, dominant, forceful and assertive. Femininities are characterized by empathetic, cooperative, understanding, warm and sensitive. In addition, the authors suggest in order being a successful female entrepreneur, one should

incorporate the social and communal values such as supportive, interpersonal capability, friendly, empathetic and sympathetic. Kirkwood (2009) supports the study saying that women entrepreneurs incline to have less confident than male entrepreneurs even they reluctant to identify themselves as an entrepreneur. The lack of confident has implication for management decisions and actions to enhance their business.

Mitchelmore & Rowley (2013), support the previous studies that women entrepreneurs pay more attention to social competencies and human relations competencies than men. Anggadwita & Dhewanto (2016), mention on their research in Indonesia that factor influencing women entrepreneurial intentions is personal attitude, whilst personal attitude is influenced by psychological characteristics, individual competence, and social perceptions. The researchers add that women are not born with lower entrepreneurial intentions than men. However, Xuemei & Jiuchang (2016) put emphasis that gender discrimination against women has an adverse impact on venture performance. The researchers support the previous research that social relationship and network are an important factor influencing venture performance.

## 2. Hypotheses Development

### 2.1. Women Green Ecopreneurial Orientation and Performance

Initially, before green entrepreneur orientation becomes intensive discussion in the recent research, empirical research gap between EO (entrepreneurial orientation) and firms performance is broad in scope some of the findings support that firms which adopt EO have much better performance than the rest which did not adopt (Wiklund & Shepherd, 2005; Awang et al, 2010; Van Doorn et al, 2013; Schepers

et al, 2014). In short, EO adoption leads to superior firm performance. In contrast, some studies revealed that there was little correlation between EO and firm performance (Lumpkin & Dess, 2001; Demitratos et al, 2004). In addition, some findings have no significance relation or lower relation between EO and firm performance (George et al, 2001; Demitratos et al, 2004; Wiklund & Shepherd, 2005). The previous studies found out that there was considerable variation in the studies of the relationship between EO and firm performance. To date, the clamor to have a greener and more sustainable way of doing business, sustainable, green, ecology-based, environmental friendly become the attention and important topic in the discussion of entrepreneurship. There are many labels with respect to sustainable entrepreneurship such as green-entrepreneurship, eco-preneurship, enviro-preneurship. However, the emergence study and literature on green entrepreneurship orientation is relatively young and fragmented. The convergence result of the scholar's studies, saying that ecologically sustainable entrepreneurship (green entrepreneurship) is a subdomain of entrepreneurship research. (Schaltegger & Wegner, 2011; Aryanto, 2017; Gast et al, 2017). So far, there is not yet study of green entrepreneurship orientation and its impact on firm performance. Therefore, the empirical research gap analysis in this study uses entrepreneurship orientation and firm performance. Teeratansirikol et al, (2013) classified firm performance as an increase of revenue, increase of cash flows, Return on Investment, Return on Equity, market share expansion, market development, new product development, employee loyalty & development, product development and quality. The Islamic sustainable macro marketing is discussed by El-Bassiouny et al (2017), the perspective of sustainable marketing is based on Islamic tradition

making a careful search of information into Divine attributes (*Asmaa' Allah-ul-Husna*) on the principle of God consciousness.

Most of the study of EO in relation with firm performance did not tackle the issue of gender differences, women or female entrepreneurship was not discussed intensively. Female entrepreneurs, as a matter of fact, represent the driving force of in economies and shows the high representativeness in the various organization.(Wales et al, 2011; Acs et al, 2011; Fellnhofner et al, 2016). To bridge the gap between EO in relation to the SMEs performance, this study proposes to mediate with online social media to improve firm or SMEs performance. In addition, the traits of Islamic entrepreneurship (Chowdury, 2008) is adopted to reveal whether women green entrepreneurship orientation has an adverse impact on SMEs performance. In this regard, this study suggests to explore the impact of women green entrepreneurship orientation to the SMEs performance in the Islam predominant country in the following hypothesis:

H1. Women green Entrepreneurship Orientation is significantly related to SMEs Performance.

## 2.2. Online Social Media in relationship with Firm Performance

Using online social media nowadays is inevitable, data provided by Internet World Stats 2017 reveals that Internet users in Indonesia are the fifth largest in the world. The number of internet users is 132.7 million, the Internet penetration is 50.4%, while the users of Facebook consist of 88 million. Therefore the use of Facebook particularly fan page Facebook is increasingly becoming popular among micro and small medium enterprises in Indonesia. Marketing communication through

Facebook enables the SMEs to promote their business. The prevalence of smartphone assists to go beyond an individual one-to-one chatting and now enable communication of many-to-many (Derham et al, 2011; Ainin et al, 2015).

Surugiu & Surugiu (2015), technological advancement nowadays can assist business including marketing activities, products, and services distribution, booking etc. Heritage tourism entrepreneurs adopt the use of online social media not only in terms of advertisement but also disseminating the story of tourism heritage to attract tourists to visit the heritage sites. Jones et al (2015) support the previous study saying that the use of online social media increases the better relationship with SMEs customer relationship, better brand awareness, and higher sales. However, the women entrepreneurs have to solve their obstacles in technology knowledge acquisition. Lipizzi et al (2016) support the previous studies, that the use of online social media increases newly-launched movie revenue. Syarief et al (2015) put emphasis on the use of online social media for students' entrepreneurship program through business incubators. The use of Twitter is useful to increase brand awareness and sales.

Facebook usage is significantly related to the improvement of company performance either financial performance and non-financial performance such as cost dwindling and broader consumers accessibility. The use of Facebook is very simple and compatible either by smart mobile phone as well as any computer devices, therefore, compatibility facilitates consumers technology adoption (Wong et al, 2010; El-Gohary, 2012; Ainin et al, 2015). A recent study conducted by Aryanto (2017) also supported the previous study that the use of e-marketing promoted the marketing performance of the SMEs in Indonesia. In

this regard, this study sets forth that the use of online social media which is Facebook increases the SMEs performance as depicted in the following hypothesis.

H2. The use of online social media (Facebook) is positively significantly related to SMEs performance.

### **2.3. Online Social Media in relationship with Green Entrepreneurship Orientation**

Entrepreneurial orientation is pondered as an important asset for SMEs competing in online environments. It is defined as the methods, applications, and decision making of the managers to practice entrepreneurially. These incorporate experimenting with new technologies, willing to capture new market chances and having to bear risky ventures (Colton et al, 2010; Parveen et al, 2016). Lechner et al, (2005); Adebayo (2015) added that social network is substantially needed to enhance capabilities; since it boosts learning and relation with other SMEs. Furthermore, social media might improve the success possibility of the SMEs. Shuai & Wu (2011); Parveen et al (2016) found out in their study that the use of social media has a significant effect on firm performance in terms of cost saving, the betterment of customer relationships and services and improved information accessibility. The use of social media also has enhanced customer relationships, dwindling cost of marketing, facilitating competitors and customers information.

Odoom et al (2017) amplified the previous studies that particular media (Facebook and Twitter) are cost-effective representing an efficient online channel for SMEs such as

cost effectiveness, ease of use, interactive characteristics, speed and better access to larger consumers regardless remote locations, sharing content creation, monitoring competitors to avail of marketing activities. Fischer & Reuber (2011) revealed that online social media like twitter, facebook etc played a role to boost the level of social interactions among entrepreneurs. Exchange of information has occurred in forms of knowledge and technology transfer and particular behavior like motivation to succeed in running the business. Effectuation process has taken place when the entrepreneurs adopted social media such as twitter, facebook, path, line etc. Chen & Evans (2009), the study of 11.5 million Twitter sites shows that “entrepreneur” is one of the most common words in the profile of most active users. Seventy-five percent out of the traffic has more than 1,000 followers. The online social media enables the entrepreneurs to be able to access additional material resources such as funding, intangible resources in form of reputation and entrepreneurial orientation spirits (Sarasvathy, 2001). This study set forth the hypothesis as follows:

H3. The use of online social media is positively and significantly related to green entrepreneurship orientation.

## **3. Research Method**

### **3.1. Measurement**

A self-administered questionnaire was developed with respect to robust literature traced. The questionnaires zero in women Green entrepreneurship orientation concept. Revealing the conceptual model, this study utilizes a 15-item-questionnaire which contains women green entrepreneurship orientation (five items), online social media (five items), and SMEs performance (five-

items). A ten-point rating scale was applied to gauge the items that secured by strongly disagree”, (1) and “strongly agree,” (10). Why we applied a 10 point-scale, Dawes (2008) points out that 5-point scale is simple for the interviewer to read out the complete list of scale descriptors (1 equal to strongly disagree to 5 equal to strongly agree). The clarification is lengthier for the 7-point scale to 10-point scale. Therefore, a 10-point scale addresses better reliance on the respondents using numerical response. Furthermore, the validity and reliability are improved by using a 7-point scales and a 10-point scale. The scale format may influence the mean score, variance, skewness, and kurtosis.

### 3.2. Sampling and Data Collection

The green Batik small and medium enterprises (SMEs) in Indonesia were selected for the research, the purposive sampling method was used in this study. There were criteria considered to be complied before chosen as the sample. First, the length of SMEs operation was at least five years, second, they must be SMEs involved in green batik (Indonesian hand-painted textile) using natural dyes as their substance for coloring and or meeting with the environment-friendly life cycle. The data were collected from three green batik industrial clusters namely Gemawang Ambarawa, Pedan Klaten, and Demak in Central Java during the July 2016 to November 2016. Data collection was conducted through direct face-to-face interviews and questionnaires distribution. A total of 219 questionnaires were distributed, 180 was valid to be followed up. The sample size meets the requirement for the casual model with 15 indicators referred to Bentler and Chou (1987)'s

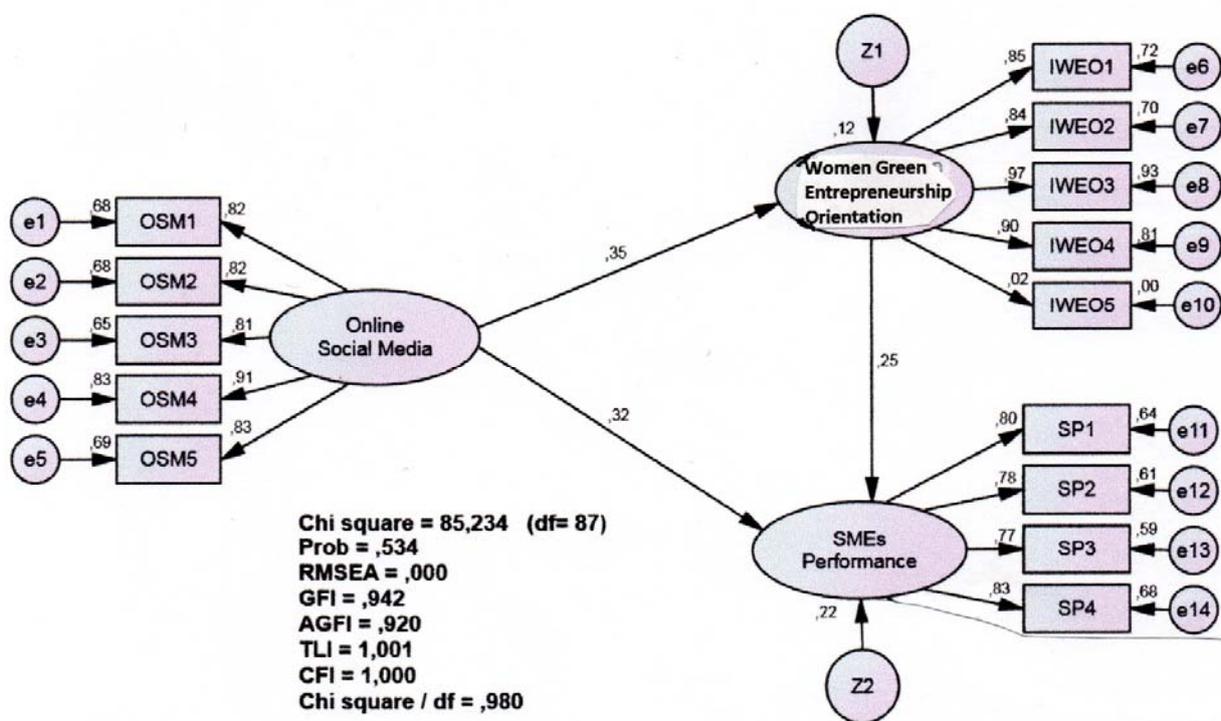
claimed that about 5 to 10 observations per indicator variable.

Samples were drawn from three SMEs Batik clusters 1. Gemawang Ambarawa comprised 80 respondents, 2. Pedan Klaten comprised 97 respondents and Demak comprised 3 respondents, Demak cluster is the least respondents since the population of the batik artisan SMEs were only six. The interesting phenomenon was the entire batik artisan SMEs were owned by Islam women entrepreneurs. In so doing, they employed women as batik craftswomen. Processed of making batik is first, the wax is applied over the penciled-in outlined on the pattern. Second, the cloth is dyed with natural substance in the dye bath; the latter must be applied again. Third, all the wax that has been applied is removed by heating the wax with hot water. They can be called as women green entrepreneurs since their business focus on environmentally sound business. Historically, they ran their business as a second job aside from their husband's job, however, by the time, their business flourish and become the main household income.

## 4. Findings

### 4.1. Measurement Validation

We used structural equation modeling (SEM) version 23 to assess the validity and reliability of our measurement in the conceptual model. Model in this study included Women Green entrepreneurship Orientation (risk taking, customer orientation, innovativeness, halal earnings, honesty & truthfulness), Online Social Media (proactiveness, intensive relationship, and active collaboration, effectiveness, and customer maintenance), SMEs Performance (sales volume, market size, ROA, sales growth, HRM growth).



**Figure.1. FULL MODEL TESTING**

The confirmatory factor analysis (CFA) undertaken and divulged that all factors have high loading refers to the assigned constructs. Furthermore, the goodness-of-fit estimates were acceptable ( $\chi^2 = 85.234$ ;  $p = 0.534$ ;  $\chi^2/df = 87$ ;  $GFI = 0.942$ ;  $AGFI = 0.907$ ;  $TLI = 1.001$ ;  $CFI = 1.00$ ;  $RMSEA = 0.000$ ;  $Chi\text{-square}/df = 0.980$ ). Construct reliability was undertaken to estimate Cronbach's Alpha Coefficient  $\{\alpha\}$ , Composite Reliability (CR) score, and Average Variance Extracted (AVE). Composite Reliability according to Pop et al (2010) was tested by counting the composite

reliability estimation while discriminant and convergent validity were measured by Average Variance Extracted (AVE), Peri et al (2012). All constructs have values and composite reliability scores equal to or exceeding 0.70, according to Nunnally & Berstein (1999), if Cronbach alpha  $> 0.70$  met the requirements of reliability (as seen in Table 1). In addition, the average variance extracted for all constructs is equal or larger than 0.50 satisfying the recommendation. Table 1 depicted the measurement scales, standardized factor analysis results Cronbach's Alpha Coefficient and AVE.

**Table 1. Measurement Scales, Confirmatory Factor Analysis & Reliabilities**

<b>Construct &amp; Measurement Items</b>	<b>Standardized Loadings</b>	<b>S.E (α)</b>	<b>Composite Reliability</b>	<b>AVE</b>
<b>Women Green entrepreneurship Orientation</b>		0.72	0.81	0.58
Risk Taking	0.85			
Customer Orientation	0.84			
Innovative in ecological preservation	0.97			
Halal Earnings	0.90			
Honesty & Truthfulness	0.02			
<b>Online Social Media</b>		0.76	0.83	0.58
Proactiveness	0.82			
Intensive Relationship	0.82			
Active Collaboration	0.81			
Effectiveness	0.91			
Customer Maintenance	0.83			
<b>SMEs Performance</b>		0.72	0.81	0.60
Sales Volume	0.80			
Market Size	0.78			
Return on Assets	0.77			
Sales Growth	0.83			

Source: Data Analysis, 2017.

## 5. Hypotheses testing

We estimated a structural model to test the hypothesized relation between the constructs. Table 2 illustrates the structural model. It showed the standardized path coefficient. Women, green entrepreneurship orientation has a significant impact on SMEs performance (0.216) as H1 is supported. In addition, H2, Online social media also has shown as the key driver for SMEs performance (0.271), H3 is also supported

(0.336). H1 which proposes Women entrepreneurship orientation affects SMEs performance is supported ( $CR > 2$ ), whereas H2, that proposes online social media affects significantly SMEs performance is supported ( $CR > 2$ ), and H3 that proposes online social media affects significantly Women green entrepreneurship orientation is supported.

**Table 2. Hypotheses Testing**

Hypothesized Variables			Estimate	SE	CR	H	Support
SMEs Performance	←	Women Green entrepreneurship Orientation	0.216	0.72	3.023	H1	Yes
SMEs Performance	←	Online Social Media	0.271	0.72	3.766	H2	Yes
Women Green entrepreneurship Orientation	←	Online Social Media	0.336	0.76	4.415	H3	Yes

Source: Data Analysis, 2017

## 6. Discussion

Online social media plays an important role to promote SMEs performance as well as Women green entrepreneurship orientation. The significant impact of online social media on Women green entrepreneurship orientation is supported by previous studies Sarasvathy (2001); Chen & Evans (2009); Fischer & Reuber (2011), revealing that online social media has significant effect to promote entrepreneurship orientation among the users. The prevalence use of smartphone facilitates the users to connect to the online social media network such as Facebook, Twitter, and most importantly WhatsApp (WA). The formation of interest group (women green entrepreneurs) socializes with others, even with foreigners; the language barrier is overcome by online translation sites. The SMEs actors take advantage to have green entrepreneurship orientation such as willingness to take the risk, focusing on customers, and innovative orientation. The utilization of social media has enabled the SMEs actors to have a network as well as customers from Europe, USA, and Japan.

This is really an unprecedented phenomenon that SMEs in Indonesia's remote area to have international market access at very affordable costs. The use of social media has become a juncture to be proactive to approach their customers and simultaneously to keep maintaining intensive relation with their customers. The SMEs actors avail of WhatsApp, Telegram and Instagram chat group with their trusted customers, suppliers, and another interest group for instance university's lecturers and government officials to prevent hoax and hackers or those who are intending to disrupt their business. Even the relationship is not only within the group but also involving other cluster Batik SMEs groups. However, since the most SMEs actors are in average having lower level education, there is a foreign language and technology barrier, therefore, the University of Dian Nuswantoro through its community services plays a role to give them in strengthening their capacity building through technical assistance.

Online social media has a significant impact on SMEs performance, this finding is supported by previous research conducted by Derham et al (2011); Ainin et al (2015); Aryanto (2017). Findings of the study suggested that proactiveness, intensive relationship, active collaboration, effectiveness and customer maintenance in utilizing online social media has enhanced SMEs performance. Online social media has facilitated the SMEs actors to acquaint unfamiliar market such as some foreign customers, unfamiliar green customers in big cities throughout the country, even they are able to get in touch with foreign association of natural dyes in USA, Italy and Japan, the same interest group that is eager to promote natural dyes in order to preserve the environment. More importantly, after mingling with new customers, some of them come from abroad they are not only buying the batik product items online but also visit the Batik art shop in Klaten Indonesia. They visit the art shop site and learn how to make natural dye batik; this becomes an experimental marketing of natural dye batik. In addition, some of the batik artisans were invited to their countries to disseminate the process of natural dye batik making. This finding is in accordance with the previous study that social media plays an important role to expand the social interactions among entrepreneurs (Fischer & Reuber, 2011).

The salient point of this study is that the women SMEs actors are Islam by faith, they carry out their values and tenet that implementing environmental preservation is in line with the teaching of Islam. "Look for not mischief in the land, for Allah loves not those who do mischief" (Al-Qasas: verse 77). Mischief on the land and sea is caused by man's unaware obstruction with the natural laws and environmental systems that eventually contrary to his own interests.

Environmental pollution, that is tantamount to the disarrangement of environment balance, is the major form of corruption on earth. Allah created man on earth, he appealed that man should conserve his habitat. He decreed man not to commit mischief anywhere, instead to preserve natural balance and earth equilibrium.

Table 1. Indicates that one of the Islamic green entrepreneurship orientation's variable indicator; innovative in ecological preservation depicts its significance, meaning the respondents practice the life cycle assessment for running their business. Commencing from providing the raw production and sustainable business.

Women green entrepreneurship orientation has a significant impact on SMEs performance as portrayed in the H1. The Islamic green entrepreneurship orientation, as a matter of fact, promotes SMEs performance as it is supported by previous studies done by Schaltegger & Wegner, (2011); Aryanto, (2017); Gast et al, (2017). Their entrepreneurship orientation coupled by sustainable or ecology paradigm and the values of Islam has a significant effect on SMEs performance comprises of sales volume, market size, return on assets and sales growth. However, the HRM growth is not significant since its loading factor is less than 0.5. In general, Women Green entrepreneurship orientation is a novel variable in this study that significantly contributes to the study of Women Green entrepreneurship orientation particularly in relation to the SMEs performance. The women SMEs actors practice and uphold the values of Islam such as customer orientation, halal earning, honesty, and truthfulness. Holy Koran says "when you end your prayer, get scattered on land and search for my blessing (travel on land for

generating money) (6:10). Honest traders will be the category of messengers, saints, and martyrs on the day of judgment”.

The entrepreneurship orientation based on the ecological paradigm and Islamic values have convinced their customers to keep patronizing their products no matter their ethnicity, nationality, gender, religious affiliation, and country of origin. They are able to be trusted in the eyes of their customers, therefore, it boosts their SMEs performance. In addition, online social media also facilitates their interactivity. Actually, the SMEs actors have strong social cohesion among themselves, for instance, they have cooperative as an institution to facilitate not only with their business but also as a place to share and discuss their problems and information. The way they are doing their business is in the principle of togetherness and harmony. However, they have some sort of shortcomings such as lack of formal education, lack of business know-how particularly to deal with foreign buyers, lack of technology literacy, and lack of working capital to expand. The technical assistance undertaken by university's community services does help their capacity. The gender issue becomes the uniqueness of this study since all respondents are women. The finding is supported by the previous studies undertaken by Mitchelmore & Rowley, (2013); Anggadwita & Dhewanto, (2016) that women entrepreneurs tend to have social attention such as human relation competencies, harmonious relations, togetherness and personal attitude than men. Initially, the SMEs actors were trained by Germany's non-government organization to be a start-up in Batik cottage industry. To have a distinct advantage than the rest of similar batik industries the batik crafters and artisans were directed to green and

sustainable business practices as ecopreneurs.

## 7. Conclusion & limitation of the study

Women green entrepreneurship orientation has a significant impact on SMEs performance, the online social media has a significant impact on both SMEs performance and Women green entrepreneurship orientation. This study has enriched the previous studies (Chowdury, 2008; Paterson, 2012; Galkina & Hultman, 2016) that entrepreneurship orientation is emphasized by the value of green and sustainable business practices and more importantly, with the values of Islam has a significant effect on SMEs performance. This study also puts emphasized to tackle gender issue which is women ecopreneurs.

The limitation of the study focuses on the specific industry clusters that the SMEs has run the green and sustainable business, the next study should be focused on the clusters that have yet to implement green and sustainable business practices, so the process from unsustainable to be sustainable practices can be deepening. The trait of Batik cottage industry has no research and development investment. Therefore, the development of its creativity and innovativeness depends on external agents such as university, non-government agency or government agency. The external agent plays an important role to develop their capacity through technical assistance.

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